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draft
april 1990



LAKE MCDONALD
GLACIER NATIONAL PARK • MONTANA

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

SUMMARY

The National Park Service proposes to rehabilitate and improve visitor facilities and concession employee housing at the Lake McDonald Lodge area of Glacier National Park. Ongoing rehabilitation work on the historic lodge and cabins will be continued. Other new or rehabilitated facilities at Lake McDonald will include a new lodging structure and restaurant to replace an existing motel and coffee shop, a visitor contact station, replacement housing for approximately 60 percent of the concession employees currently housed on site, a maintenance building, and redesigned roads and parking. About 40 percent of the employees currently housed at Lake McDonald will be moved outside the park to housing to be arranged by the concessioner or by the employees. The concessioner will have several options for off-site employee housing, including the provision of company housing in existing or new structures in the West Yellowstone area and encouraging employees to bring their own trailers or RVs.

The current proposal is a revision of a 1986 proposal to improve visitor services and concession employee housing at Lake McDonald. Concern about impacts on threatened bald eagles using the Lake McDonald area prompted a reevaluation of the earlier plan. The current proposal is considered the most feasible of several options considered by a team of eagle experts and will have a less adverse impact on eagles than the 1986 plan. The current proposal will relocate employee housing to the existing motel site on the northern end of the Lake McDonald development, avoiding the eagle roosting area south of the lodge. The site will be designed to retain as many trees as possible, and additional trees will be planted, to help make buildings and human activity less visible to eagles and to provide perching and roosting habitat. Construction will be timed to avoid disturbance during periods when eagles are nesting in the spring and migrating through the area in the fall.

The proposal will remove all employee housing from the floodplain. Most of the existing dormitories will be removed, but the three that are historic structures will be retained and adapted for day uses. The Lake McDonald Lodge historic district will be improved by removing the existing coffee shop building, which is an architecturally incompatible modern intrusion on the district. A new lodging structure will be constructed in the district, but it will be designed to be compatible with the existing rustic architecture to minimize its intrusion.

Access and circulation will be improved by simplifying vehicle access and encouraging people to walk between sites. The visual impacts of roads and parking will be reduced by softening their outlines and screening them with vegetation.

Three alternatives to this proposal include the possibilities of providing all concession employee housing on site, providing most housing off site, and taking no action. Compared to the proposal, both the no-action alternative and the alternative of moving most employees off site would have a less adverse effect on eagles. The no-action alternative was determined to be infeasible because it would subject concession employees to substandard housing in the 100-year floodplain of Snyder Creek. The alternative of relocating all employees off site was determined to be economically infeasible for the concessioner. None of the alternatives, including the proposal, would substantially change impacts on bald eagles in the Lake McDonald area. No substantial impacts on natural or cultural resources or the human environment would result from the proposal or any of the alternatives.

CONTENTS

INTRODUCTION	1
PURPOSE OF AND NEED FOR THE PLAN	1
CURRENT PLANNING PROBLEMS/ISSUES	2
MANAGEMENT OBJECTIVES	2
AREA DESCRIPTION	13
NATURAL RESOURCES	13
Lake McDonald Lodge Area	13
Soils	13
Vegetation	13
Wildlife	13
Threatened and Endangered Species	13
Water Resources	15
Floodplains and Wetlands	15
Air Quality	16
Visual Quality	16
Park Headquarters Area	16
Soils	16
Vegetation	16
Wildlife	21
Threatened and Endangered Species	21
Water Resources	21
Floodplains and Wetlands	21
Air Quality	21
Visual Quality	21
CULTURAL RESOURCES	21
Lake McDonald Lodge	21
Headquarters Area	22
VISITOR USE	23
EXISTING DEVELOPMENT	23
PROPOSAL	25
VISITOR EXPERIENCE	25
DEVELOPMENT	25
Circulation and Parking	25
Visitor Contact Station	26
Lodging	30
Food Service	30
Service Station	31
Employee Housing	31
Concession Maintenance Building	33
Fire Station	34
Other Facilities	34
EAGLE CONSERVATION MEASURES	34
PLAN IMPLEMENTATION COSTS	35
ALTERNATIVES	37
ALTERNATIVE A: MAXIMUM HOUSING ON SITE	37
ALTERNATIVE B: MAXIMUM HOUSING OFF SITE	37
ALTERNATIVE C: NO ACTION	38

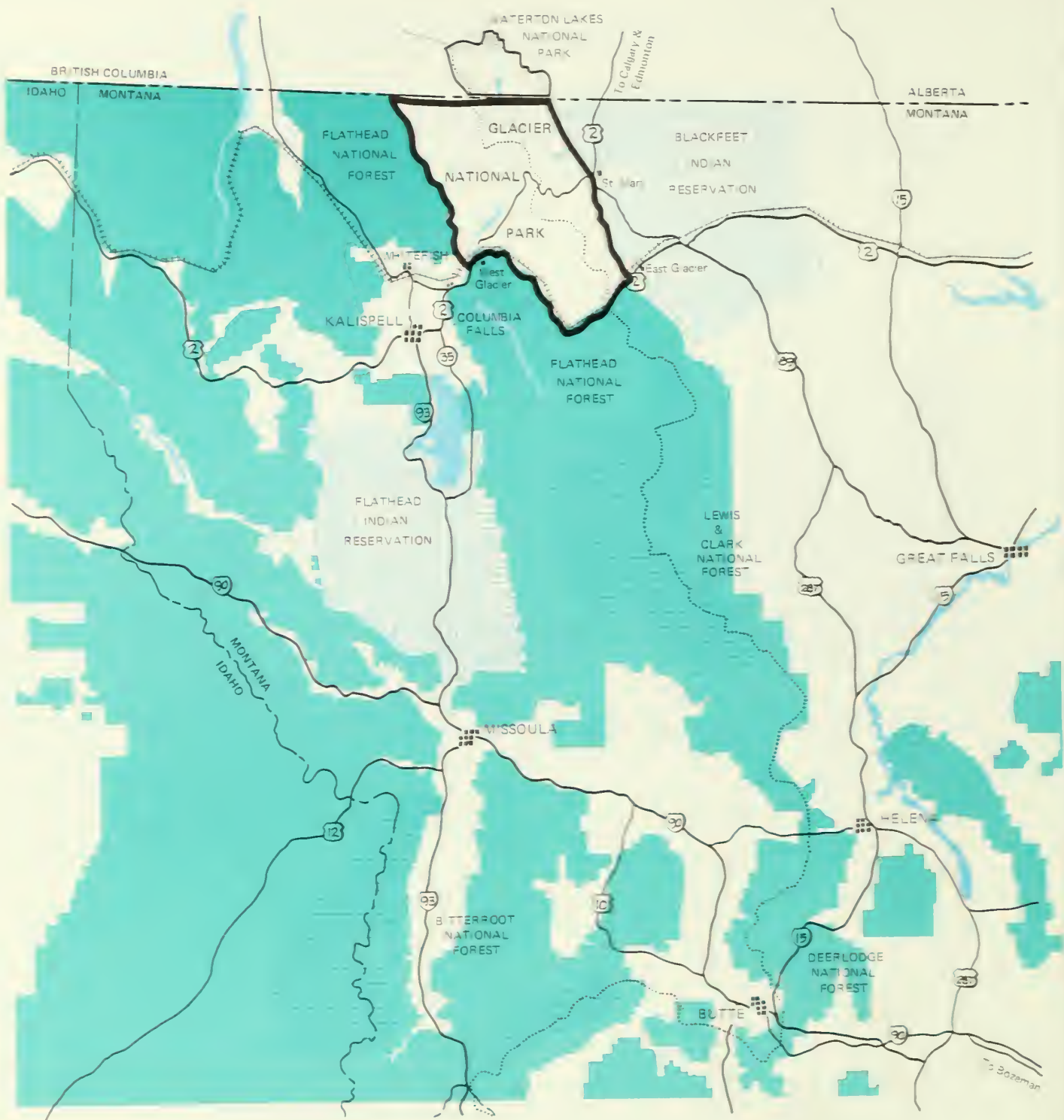
ALTERNATIVES CONSIDERED BUT REJECTED	38
ENVIRONMENTAL IMPACTS	46
IMPACTS OF THE PROPOSAL	46
Natural Resources	46
Cultural Resources	50
Visitor Experience	50
IMPACTS OF ALTERNATIVE A	51
Natural Resources	51
Cultural Resources	52
Visitor Experience	52
IMPACTS OF ALTERNATIVE B	52
Lake McDonald Lodge	52
Natural Resources	52
Cultural Resources	53
Visitor Experience	53
Park Headquarters Site	54
Natural Resources	54
Cultural Resources	54
IMPACTS OF ALTERNATIVE C (NO ACTION)	55
Natural Resources	55
Cultural Resources	56
Visitor Experience	56
CONSULTATION	57
APPENDIX A: DEVELOPMENT COST ESTIMATES	58
APPENDIX B: ANALYSIS OF CONCESSIONER COSTS AND OPERATIONAL FEASIBILITY	61
APPENDIX C: DESIGN GUIDELINES	66
APPENDIX D: PARKING AREA CALCULATIONS	73
SELECTED REFERENCES	74
PLANNING TEAM	75

TABLES

Table 1: Concessioner and NPS Housing, Proposal	32
Table 2: Summary of Estimated Development Costs, Proposal	36
Table 3: Summary Comparison of the Proposal and Alternatives	45

MAPS

Region	viii
Location	7
Vicinity	8
Existing Development, Lake McDonald	9
Existing Development, Headquarters Area	11
Site Analysis, Lake McDonald	17
Site Analysis, Headquarters Area	19
Proposal, Lake McDonald	27
Schematic Floor Plan, Garden Court Building	29
Alternative A, Lake McDonald	39
Alternative B, Lake McDonald	41
Alternative B, Employee Housing at Headquarters	43



- CONTINENTAL DIVIDE
- INDIAN RESERVATION
- NATIONAL FOREST
- WILDERNESS
- AMTRAK (BURLINGTON NORTHERN RR)

NO SCALE



REGION

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INTRODUCTION

The Lake McDonald Lodge developed area is on the eastern shore of Lake McDonald about 11 miles north of West Glacier, Montana (see the Region, Location, and Vicinity maps). The village has a lodge with restaurant, guest cabins, a coffee shop, a general store, a gas station, a tour boat operation, a horse corral, and employee housing. Several additional cabins and a motel are situated on private lands near the general store (see Existing Development map).

The 1977 master plan for Glacier National Park identified Lake McDonald as one of the park locations where visitor service facilities will be concentrated:

Lake McDonald...will continue to provide overnight lodge facilities, campgrounds, picnic grounds, camp stores, and food service. Private enterprise outside the park and adjacent to these areas will supplement these visitor service facilities, as appropriate. (NPS 1977)

The Going-to-the-Sun Interpretive Corridor map in the master plan lists these facilities and activities for Lake McDonald: trailhead, interpretation, lodge and food service, boating, and horseback riding.

PURPOSE OF AND NEED FOR THE PLAN

A development concept plan (DCP) was approved for the Lake McDonald area in October 1986. The 1986 DCP was based on an environmental assessment (EA) published in March 1985. The plan proposed to build replacement concession employee housing just south of the village area. Recent research on bald eagle use has revealed that the Lake McDonald area, including the site proposed in the 1986 plan for replacement employee housing, is an eagle use area. This area's importance appears to have increased as a result of recent changes in fish populations and eagle movements at Lake McDonald. Because the bald eagle is an endangered species, the National Park Service (NPS) has had further informal consultations with the U.S. Fish and Wildlife Service. Through this process, the NPS regional director decided to reevaluate alternatives for the DCP.

The purpose of this project is to revise the 1986 DCP for Lake McDonald. The revised plan will readdress most of the issues addressed in the 1986 DCP. However, it will not address whether to expand the visitor use season at Lake McDonald. That issue has parkwide implications and will be addressed in a new general management plan or winter use plan scheduled for the park in the next few years.

This draft plan and environmental assessment analyzes a proposal and three alternatives, including the alternative of taking no action. If, based on a review of the environmental assessment and the public response, the regional director concludes that the revised DCP will result in significant impacts on the environment, the project will include preparation of an environmental impact statement (EIS). If not, the National Park Service will prepare a finding of no significant impact (FONSI). This environmental assessment will serve as the biological assessment for consultation with the U.S. Fish and Wildlife Service. It will also serve for consultation with the Advisory Council on Historic Preservation and the Montana state historic preservation officer. Compliance with section 7 of the Endangered Species Act and section 106 of the National Historic Preservation Act will precede any finding of no significant impact. Upon approval of the final EIS or FONSI, the National Park Service will print a final revised development concept plan.

CURRENT PLANNING PROBLEMS/ISSUES

Concern about impacts on eagles is the primary reason for reevaluating development alternatives for the lodge area. The plan will reevaluate how to meet concession employees' needs for housing, meals, recreation, and parking without conflicting with eagle management or other resource management or visitor use objectives for the Lake McDonald area. Concession employees are currently housed in substandard facilities that are in poor condition and do not meet minimum space requirements. Several concessioner housing facilities are in the 100-year floodplain of Snyder Creek, which creates a hazardous condition and violates NPS policies on floodplain management. Several concessioner housing facilities are interspersed with visitor facilities, creating an undesirable mix of visitor use and employee residential activities.

The plan will also address the design of roads, parking, and walkways in the area. Three separate vehicle access routes into the village create visitor confusion and complicate controls on visitor use during critical eagle use periods. The primary entrance approaching the lodge is through a long, narrow parking lot, and there is no logical flow for first-time visitors. The spread-out parking facilities and lack of walkways and signing in key movement corridors inhibit pedestrian circulation in the village.

The plan will also address how to meet fuel storage needs outside the 500-year floodplain. The tour boat concessioner has stored fuel in a trailer at a site near the mouth of Snyder Creek that is inside the 100-year floodplain, is prime eagle habitat, and has some visitor use. The trailer is a visual intrusion as well as a potential safety hazard.

The 1986 DCP called for a small concessioner maintenance building and a new NPS fire truck storage garage next to the concession employee housing area. These proposals will be reevaluated in light of the concern for eagles and the limited buildable space in the area.

The plan will also reassess the potential for impacts on the Lake McDonald Lodge Historic District. The modern architecture of the coffee shop is inconsistent with the rustic village character. Any new development would also have the potential to affect the significant values of the historic district. The plan will include measures to mitigate any potential impacts on cultural resources.

Some elements of the 1986 DCP can be incorporated into the revised plan without further analysis. These include completion of the lodge rehabilitation project, conversion of Cobb house to offices, removal of the abandoned sewage treatment facility, and a new trail to Sprague Creek.

MANAGEMENT OBJECTIVES

The following management objectives guided the preparation and analysis of the development plan for Lake McDonald:

- Preserve bald eagle habitat and protect nesting and migrating eagles.

- Remove employee housing from the floodplain.

- Preserve historic resources and minimize impacts from new development.

- Provide high quality visitor facilities and services.

Separate employee housing from visitor use areas.

Meet minimum housing standards for employees.

Develop facilities that are compatible with traditional development and the natural park environment.

Simplify vehicular circulation and parking.

Encourage pedestrian circulation in the developed area.

Meet visitor needs for information and orientation.

Maintain the overnight lodging capacity at Lake McDonald as specified in the master plan.

Minimize visual intrusions visible from inside the developed area and from Going-to-the-Sun Road and Lake McDonald.

Provide facilities that are accessible to visitors and employees with disabilities.



Lake
McDonald



Lake
McDonald
Lodge



Visitor
Cabins



Garden
Court
Building



Hydro and
Johnson
Buildings



Dispensary
Building

Girls Dorms
1 and 2





Stewart
Motel



Gas
Station



Coffee
Shop



LOCATION

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0 1 2 3 Miles



VICINITY

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EXISTING DEVELOPMENT

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LAKE MCDONALD

HISTORIC DISTRICT

MOTEL

NPS CABIN
E 39 000

PUMPHOUSE

GIRLS' DORMS 1 & 2

CARETAKER'S HOUSE GAP

CARETAKER'S H

VISITOR

GAP

E 56 500

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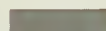
AUDITO



0 50' 100' 200'



PRIVATE LAND



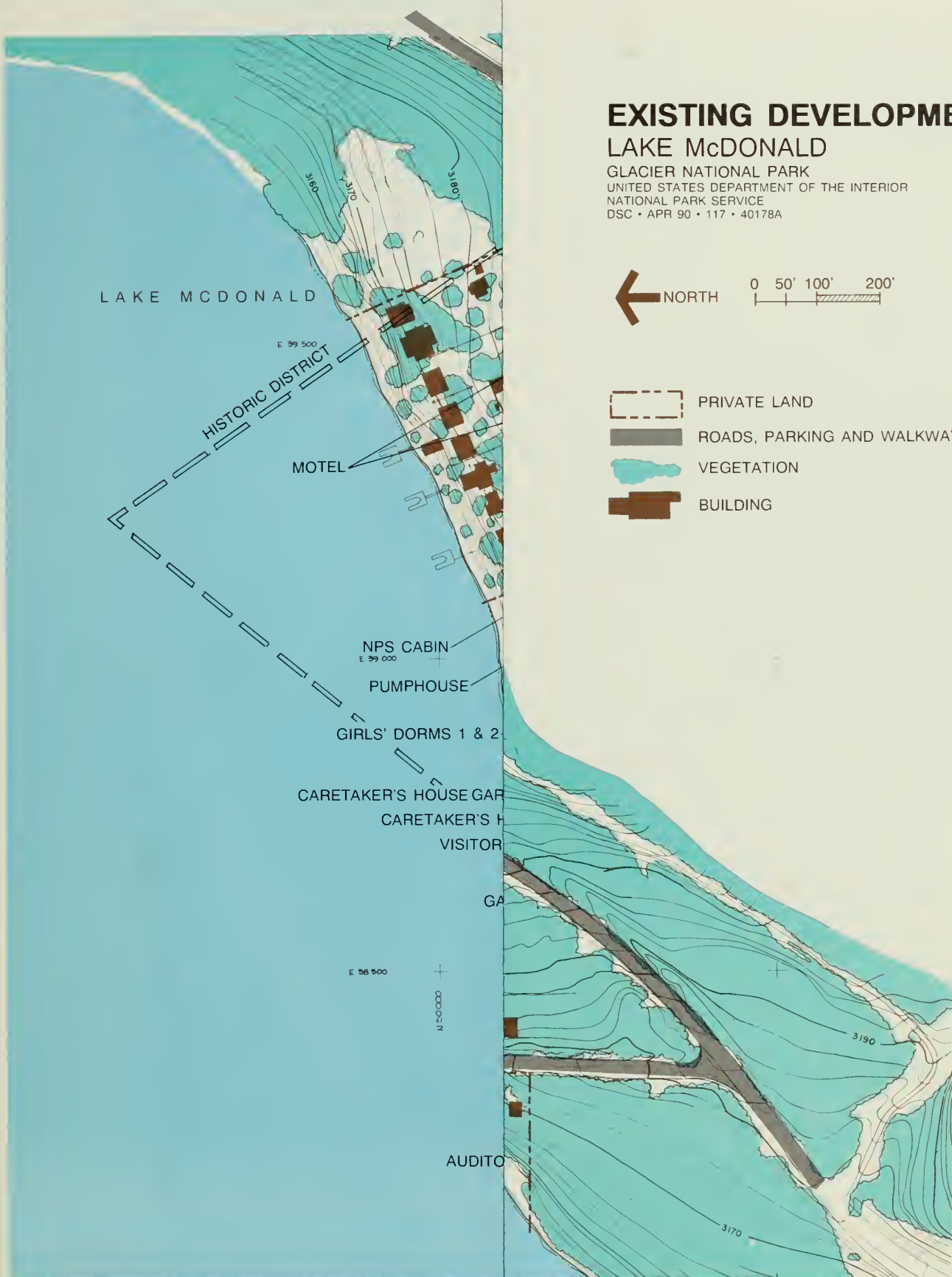
ROADS, PARKING AND WALKWAYS



VEGETATION



BUILDING

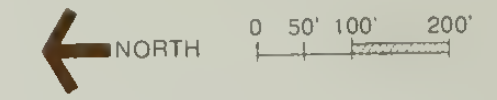




EXISTING DEVELOPMENT

LAKE McDONALD

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- PRIVATE LAND
- ROADS, PARKING AND WALKWAYS
- VEGETATION
- BUILDING

EXISTING DEVELOPMENT HEADQUARTERS AREA

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EXISTING DEVELOPMENT HEADQUARTERS AREA

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AREA DESCRIPTION

This section describes resources in the Lake McDonald developed area and in an area being considered for off-site employee housing at park headquarters, near West Glacier.

NATURAL RESOURCES

Lake McDonald Lodge Area

Soils. Soils near the lodge are variable and generally of two types and origins. Lake McDonald occupies a basin formed from till deposited by Pleistocene glaciers. The till deposits have particles ranging from clay to boulders. The area next to Snyder Creek between the lake and Going-to-the-Sun Road is an alluvial fan of stream-deposited material. The alluvial material has particles ranging from sand to boulders. Both the alluvially and the glacially deposited soils have high load-bearing capacities and low productivity. Topsoil is quite shallow. Stream-deposited material has greater porosity than glacial till.

Vegetation. The lodge and surrounding buildings are in dense forest composed of several species. Common tree species are western redcedar, western larch, western hemlock, Douglas-fir, black cottonwood, subalpine fir, lodgepole pine, paper birch, and Engelmann spruce. Cedar and hemlock are unusual in western Montana and are indicative of the fact that the Lake McDonald valley has a moist climate more typically found in the Pacific Northwest.

Common understory native plants are mountain lover, trillium, queencup beadlily, and false huckleberry. Clearings around the roads and lodge buildings are in lawns or artificially maintained open space supporting many nonnative species, such as Kentucky bluegrass, clover, oxeye daisy, and spotted knapweed.

The forest near the lodge is a mosaic of different types resulting from different fire histories and forest succession. The different forest types provide different qualities of habitat and screening. Near Snyder Creek between the lodge and the main road, and to the south, the forest is dense old-growth cedar/hemlock, with taller western larch and black cottonwood trees protruding above the lower forest canopy. Bald eagles use the taller larch, cottonwood, cedar, fir, and pine trees for perches and nighttime roosts. The lower forest canopy of cedar and hemlock screen the perching eagles from roads and activities around the buildings. Screening is a key factor in reducing the extent to which people approaching the birds flush them from their perches. Other forests around the lodge screen the buildings and parking lot from the lake and from Going-to-the-Sun Road.

Wildlife. Common mammals in the lodge area are red squirrel, yellow pine chipmunk, Columbian ground squirrel, snowshoe hare, whitetail deer, and moose. Black bear occasionally pass through the vicinity of the lodge. Common birds in the area include gray jay, various thrushes, golden eagle, ruffed grouse, rufous and calliope hummingbirds, various woodpeckers, magpie, raven, and various warblers.

Fish in Lake McDonald are the nonnative kokanee salmon and lake trout, and native cutthroat trout.

Threatened and Endangered Species. Threatened and endangered species present in the Lake McDonald valley include the endangered bald eagle (*Haliaeetus leucocephalus*) and

the threatened grizzly bear (*Ursus arctos*).¹ The endangered gray wolf (*Canis lupus*) and endangered peregrine falcon (*Falco peregrinus*) use other areas in the park. Peregrine falcons migrate through the park in the fall, but there is no known nesting in the park. There are no threatened or endangered plants known in Glacier.

A resident pair of bald eagles nest on the northwest side of Lake McDonald and forage for fish in the shallow lake waters and inlet creeks along the west shore, at the head of the lake, and along the northeast shore. They are one of only six nesting pairs of bald eagles in Glacier National Park and about 80 nesting pairs in the state of Montana (USFWS 1986).

Eagle courtship and territorial defense behavior begin in February, and eggs are laid and incubated in March through April. While bald eagles are susceptible to disturbance whenever exposed to human activity, the consequences of disturbance are most detrimental during periods of nesting and fledging, which occur during late winter through early summer. After about May 15, other lakes in the area become ice free and are used by eagles for foraging. The adult birds avoid the Lake McDonald lodge area during the summer months, possibly because of human activity during that period (NPS 1988).

Survival of young in this area has been poor and at the current rate would not sustain a stable eagle population. It is below the level established for recovery of the species (USFWS 1986). Bald eagle nestlings did not survive in 1988 or 1989 at Lake McDonald. Food is often unavailable and is one factor that affects young eagle survival. The habitat of Glacier National Park is probably marginal because the low productivity and depth of the mountain lakes make fishing difficult and because severe spring storms occur during nesting season.

During the 1930s and 1940s, there were up to three nesting pairs of bald eagles at a time on Lake McDonald (NPS 1988). Since that time a number of factors have changed, including an increase in human activity in the area, the introduction of nonnative fish populations into Lake McDonald, and other alterations of the food chain, any or all of which could have contributed to the decline. To help mitigate human disturbance of eagles, restrictions have been placed on boating, hiking, and construction activity at Lake McDonald lodge and elsewhere.

For the past several decades migrating bald eagles have been congregating along lower McDonald Creek (the lake's outlet stream) and around upper Lake McDonald during November and December to feed on spawning kokanee salmon. The nonnative salmon were introduced into the upper Flathead River system in the early 1900s. In 1981 NPS personnel recorded a high number of 639 bald eagles at one time along lower McDonald Creek and on the lake. The kokanee population migrating up the Flathead River seriously declined in 1986, resulting in a corresponding decline of autumn eagle use in the park. NPS staff counted fewer than 300 birds in 1986, fewer than 100 birds in 1987, 34 in 1988, and 25 in 1989.

Fish spawning appears to be stable at the head of Lake McDonald, including in Snyder Creek and other tributary creeks. The maximum number of eagles at one time counted in this area by NPS staff was 43 in 1986, 28 in 1987, 24 in 1988, and 14 in 1989. Eagle use is declining in this area as elsewhere, but the decline has not been as precipitous here, and therefore the area, which includes the lodge, is gaining in relative importance.

¹On February 7, 1990, the U.S. Fish and Wildlife Service published an "advance notice of a proposal to reclassify or delist the bald eagle" (*Federal Register* 55:4209). This review is still in progress and may affect the classification of the eagle in the Lake McDonald area.

In addition to foraging for fish in the area, eagles perch on nearby tall trees during the day between intervals of fishing, and they roost overnight in nearby areas that provide shelter and favorable microclimatic conditions. The characteristics of roosts are not well understood, but they provide conditions that reduce the birds' loss of energy. Eagles use the taller trees next to Snyder Creek between the main road and the lakeshore for daytime perching. The larch-cedar-hemlock forest southeast of the lodge is an important overnight roost area (NPS 1988c). NPS staff have observed eagles being flushed away from perches at the lodge by human activities on both the land and the lake (NPS 1988c). In compliance with the park's *Bald Eagle Management Plan* (NPS 1978) the areas next to lower McDonald Creek and Lake McDonald Lodge are closed during critical eagle use periods to prevent the disturbance and displacement of eagles. The Park Service also requires the Lake McDonald tour boat concessioner to practice nonintrusive boat use on the lake.

Grizzly bear occasionally pass through the lodge area and around the head of the lake. Three confirmed sightings of grizzly bears or tracks within a 0.25-mile radius of the lodge were made in the four years between early 1986 and 1989. The densely forested environment of the lodge is generally poor grizzly habitat. Since 1986 fall spawning salmon have not appeared in sufficient numbers to attract bears. When salmon begin spawning in late October, the upper fourth of the lake, including the lodge area, is closed to boating and shoreline hiking. The Park Service also employs strict controls on garbage collection and storage, requiring the concessioner to remove garbage daily from the area. No emergency grizzly bear management actions (capture attempts or emergency closures) have been undertaken since at least 1980.

Water Resources. Lake McDonald is the largest lake in Glacier National Park, with a surface area of 6,823 acres and a maximum depth of 464 feet. Snyder Creek flows west through the lodge area and into the lake, and upper McDonald Creek flows south into the lake about 1 mile north of the lodge. Water quality in the lake and its tributaries is typically excellent, with high clarity, high oxygen content, and low nutrient levels.

Floodplains and Wetlands. The Lake McDonald Lodge complex was built on an alluvial fan deposited through the post-glacial period by Snyder Creek. The area is subject to late-spring flooding during periods when snowpack runoff is combined with prolonged rainstorms.

The Seattle District of the U.S. Army Corps of Engineers has provided the National Park Service with a map delineating the 100-year floodplain (see Lake McDonald Site Analysis map). The floodplain is very large compared to the flood flow because debris could block the channel and divert the water in an unpredictable manner. Hydraulic conditions and a slope of 5 to 6 percent in Snyder Creek through the Lake McDonald development make flood flows supercritical. Standing vegetation has only a minimal effect in slowing floodwaters. During a flood the stream gains so much force that it can move trees and yards of rock and debris, causing the channel to move back and forth. In previous floods one or both bridges became blocked by debris, causing floodwaters to build up behind them. Debris also collected at channel constrictions, like the one between the auditorium/recreation room building and the lodge. As water backed up behind the debris, it spread and increased the width of the flooded area.

The delineated 100-year floodplain does not necessarily mean that all buildings in the area would be destroyed in a 100-year flood, only that there is a possibility of damage. The Corps of Engineers estimated the 100-year flood flow at 3,000 cubic feet per second, which is not large enough to cause damage to all the buildings at the same time.

Facilities in the 100-year floodplain include the Lake McDonald Lodge, the auditorium/recreation room building, Snyder Hall, Cobb House and the adjacent garage, boys' dorms 1 and 2, two storage sheds, a sewer lift station, and the Johnson, Hydro, and Jammer dorms. Of these structures, the lodge, the auditorium/recreation room, Snyder Hall, Cobb House, and the garage are in the Lake McDonald Historic District, which is listed on the National Register of Historic Places. These culturally significant resources merit the most intensive efforts to protect them from flood loss. While the lodge is in the floodplain, it is not in a high-hazard area. The flood events would not be so unexpected, violent, or otherwise devastating that human lives would be in immediate or grave danger. The risk to life safety is minimal because of the size of the building and its multistory construction.

Floods in 1964 and 1975 were contained in an area relatively near the existing channel by the use of heavy equipment to modify and channelize Snyder Creek. This practice is no longer permitted out of concern for the safety of the equipment operators. The 1964 flood, which was estimated to be greater than a 500-year flood, caused the most damage at Lake McDonald. It inundated the lodge dining room and undermined its foundation. It filled Snyder Hall and the auditorium/recreation room with at least 4 feet of debris. Several trailers were floated from their footings, and two buildings were destroyed. In addition, the flood destroyed the foot-and-horse bridge and undercut Going-to-the-Sun Road around the Snyder Creek bridge abutments. The National Park Service estimated the total cost of damages to be \$100,000 to \$200,000 (1964 dollars). Damage to the area would have been greater if park personnel had not been at work using heavy equipment to clear the bridges and push the debris at the inlet into the lake.

There are no wetlands in or near the lodge area.

Air Quality. Glacier National Park is designated a class I area under the provisions of the Clean Air Act (42 USC 7401 et seq.), which allows little additional deterioration of air quality. Air quality is good, with periods of regional haze and recorded acid precipitation. Forest fires and slash burning outside the park occasionally reduce visibility inside the park.

Visual Quality. The Lake McDonald developed area is mostly hidden from Going-to-the-Sun Road and the lake because it is in a dense cedar/hemlock forest. Modern vehicles and buses parked in front of the lodge and cabins are intrusions on the historic setting of the area. The architectural style and color of the coffee shop are incompatible with the other structures in the area. The old, abandoned sewage treatment plant near the horse corral intrudes on the landscape visible to hikers and horseback riders. Some employee activities, such as sunbathing and volleyball games, conflict with visitor use of the area.

Park Headquarters Area

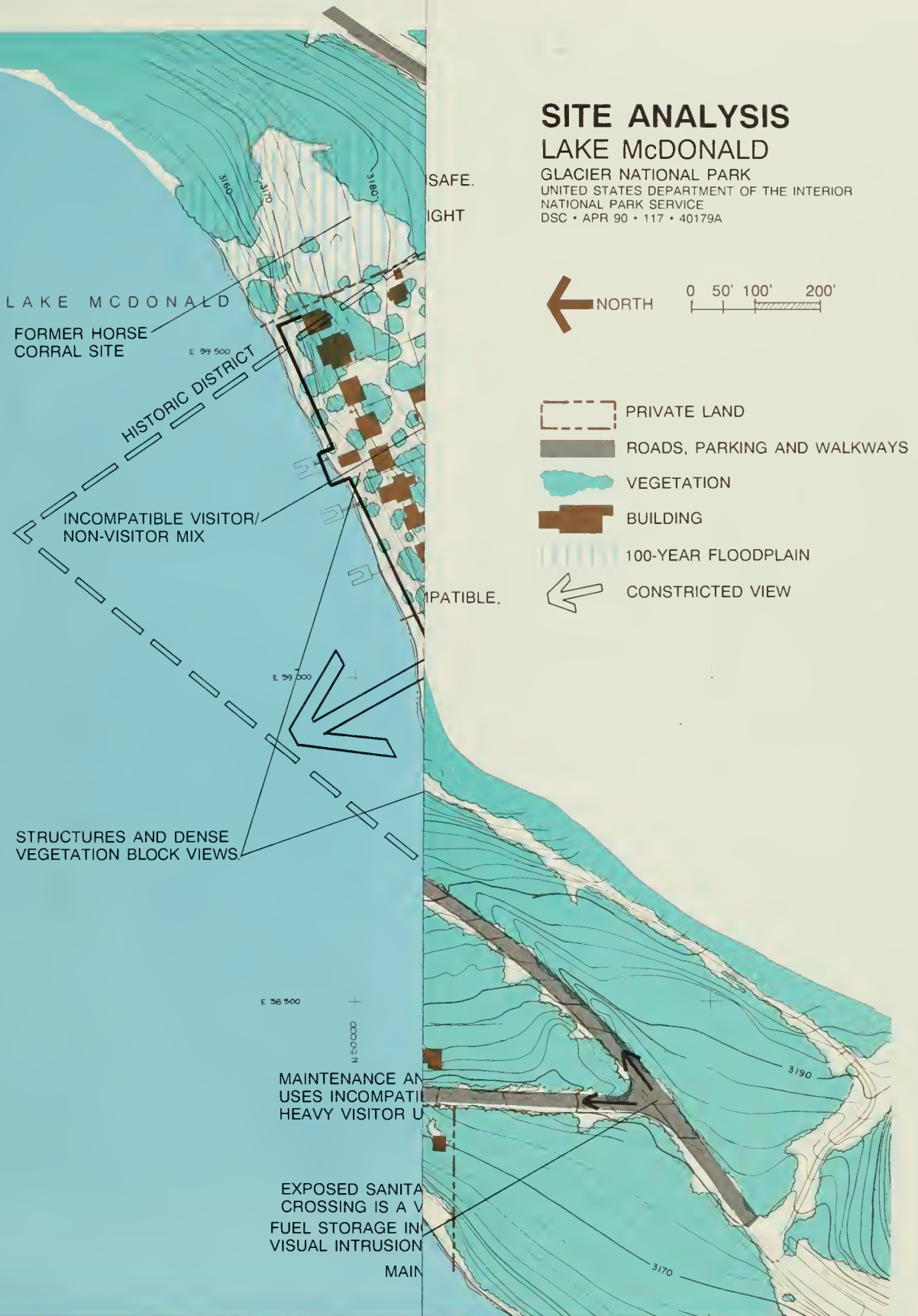
An alternative site being considered for employee housing is near the park headquarters building near the west entrance to Glacier.

Soils. Soils southeast of the headquarters building are generally sandy loams with some localized clay inclusions. Vegetative productivity is generally high as a result of the fine texture and high organic content of the topsoil.

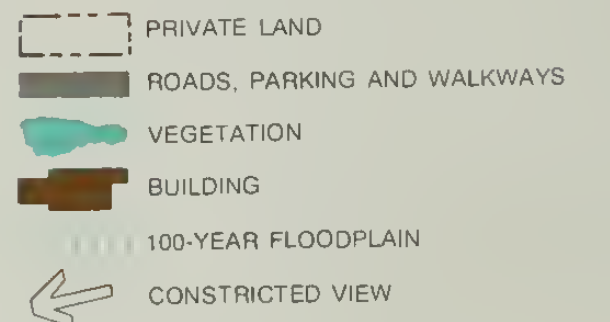
Vegetation. Forest vegetation at the site is an old-growth mixture of lodgepole pine, Engelmann spruce, western larch, western white pine, paper birch, western hemlock, Douglas-fir, and subalpine fir. Understory plants include beargrass, huckleberry, trillium, and

SITE ANALYSIS LAKE McDONALD

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HIGHLY S
WILDLIFE

N 7500

ACCESS
HEADQU

FORESTED AREA
ON A PLATEAU
ABOVE ACCESS HIGHWAY

MAIN ACCESS HIGHWAY

STRUCTURES NOMINATED
S HEADQUARTERS /
ESIDENTIAL AREA
ISTORIC DISTRICT

TO WEST GLACIER



SITE ANALYSIS HEADQUARTERS AREA

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STRUCTURES NOMINATED
AS HEADQUARTERS /
RESIDENTIAL AREA
HISTORIC DISTRICT

queencup beadlily. A rare (but not federally protected) plant, myrtle-leaf huckleberry (*Vaccinium myrtilloides*), is found on the site. This is the only known occurrence of this rare plant species in the western United States (Lesica 1984). A cleared swath of abandoned unpaved roadway passes through the site.

Wildlife. The study area is influenced by the adjacent traffic and activity associated with Going-to-the-Sun Road and the headquarters maintenance area. Tree squirrel, snowshoe hare, various mice, and occasionally pine martin, elk, whitetail deer, black bear, and grizzly bear use the area. Elk winter range and calving occur elsewhere in the lower McDonald Creek area, where they would not be affected by actions at the headquarters site. Birds using the area include gray jay and various warblers, thrushes, and woodpeckers. The wildlife value of the headquarters area was rated as moderate in the 1981 *Environmental Assessment for the Development Concept Plan for the Apgar/Headquarters Area* (NPS 1981).

Threatened and Endangered Species. Migrating bald eagles may pass through or near the potential housing site during the November-December kokanee salmon migration up the Flathead River and McDonald Creek. The forest screens the site from eagle use areas along the Middle Fork of the Flathead River. The site is about 1 mile from eagle use areas along lower McDonald Creek, and actions at headquarters would not affect these areas. There are no eagle nests in the headquarters area.

Grizzly bear occasionally pass through the area; however, their use is infrequent, and no critical grizzly habitat is close to the headquarters site. Bears forage along McDonald Creek during the autumn salmon spawning run.

The gray wolf is found elsewhere in the park, but does not use this site. Peregrine falcons are migrants through the park, but do not use this area.

Water Resources. The headquarters area occupies a terrace above the Middle Fork of the Flathead River and is about 1 mile from lower McDonald Creek. Potable water is piped to the headquarters area from a spring about 3 miles away in the Apgar Mountains.

Floodplains and Wetlands. The headquarters area is above the 500-year floodplain, as shown by the 1964 flood. There are no wetlands in or near the headquarters site.

Air Quality. Air quality at headquarters is the same as described above for the Lake McDonald Lodge area.

Visual Quality. Dense forest vegetation at the headquarters site screens it from visitor traffic on Going-to-the-Sun Road. The site is not visible from the Middle Fork of the Flathead Wild and Scenic River or from the NPS housing area; however, it may be visible to NPS employees from the headquarters administration building and from portions of the maintenance yard.

CULTURAL RESOURCES

Lake McDonald Lodge

All the significant historic resources in the Lake McDonald developed area are included in the Lake McDonald Lodge Historic District, which was entered on the National Register of Historic Places in 1978 as a locally significant resource. The primary historic structure is the main lodge building built in 1913-14 by a private owner, John L. Lewis. It is a 3-1/2-

story rustic log structure containing a full-height lobby between two parallel wings of guest rooms. The lodge is attached to the northeast side of a log structure built in 1910 which now (greatly altered) serves as the dining room. A more recent kitchen wing adjoins the south side of the dining room. A row of 13 one-story cabins, most of which predate the lodge, extends northeast from the lodge along a path parallel to the lakeshore.

Ancillary structures that contribute to the overall rustic appearance of the district and date to the Lewis period (before 1930) are the Garden Court building (1927), Cobb House (1918), Snyder Hall (1911), the auditorium and recreation room building (1927), the barbershop or dispensary (1909), the caretaker's residence (1922), and the carpenter shop (1922). Historically significant structures listed on the National Register form that were built after Lewis sold his property to the government are the McDonald cabin (1935), which remained in private ownership until 1975, the lower stone bridge across Snyder Creek, built by the CCC in the early 1930s, and the general store, built by the Glacier Park Company around 1937.

Seven privately owned residences north of the lodge cabins are included in the National Register district as compatible structures. These lakeshore cabins were all built between 1918 and 1940.

The coffee shop, caretaker's garage, sewage lift station, gas station, girls' dorms 1 and 2, and boys' dorms 1 and 2 are in the historic district but, according to the National Register form, "exhibit no architectural uniqueness." This terminology is interpreted to mean that they are noncontributing structures and not eligible for the National Register of Historic Places. The fire truck building was installed since 1978 and is not historic. The Hydro and Johnson dorms, both built in 1918, have since been moved from their original locations and were left out of the district. The motel and two miscellaneous structures (GNP 53 and 54) are listed as intrusions in the historic district.

Going-to-the-Sun Road, which passes through the Lake McDonald Lodge area, is a significant historic resource listed on the National Register of Historic Places.

Because of the number and condition of historic resources, the occurrence of historic archeological resources is highly probable, although only one has been found in the study area during several project-specific surveys conducted to date.

No comprehensive park survey for archeological resources has been conducted. None of the archeological sites discovered in the site-specific surveys performed in the park to date would be affected by any of the alternatives being considered. Any unsurveyed areas where land modification is planned would be surveyed prior to ground disturbance.

Headquarters Area

Construction of residential and administrative buildings at headquarters began in 1917 on land donated by NPS director Stephen Mather. Construction continued through the 1920s and 1930s, the Mission 66 era, and into the present. A proposed headquarters residential historic district includes 44 structures that are considered eligible for listing on the National Register of Historic Places. An additional 13 maintenance buildings make up a proposed maintenance area historic district. The buildings immediately next to the potential housing site are maintenance buildings of pre-World War II vintage, but no evaluation has been made of these structures. The potential housing site is not included in the proposed historic district.

VISITOR USE

Visitor use at Glacier National Park has fluctuated between 1.4 million and 2.2 million visits per year over the past 10 years (see figure 1).

People use the Lake McDonald area for overnight lodging, food service, hiking and horseback riding, boat rentals, and staging for tour boat and tour bus trips.

The Lake McDonald Lodge operates at or near capacity during the three summer months. Food service facilities are also intensively used. The gas station is not heavily used by park visitors. They must get a key in the store to operate the pumps, and gas is available about 11 miles away in West Glacier.

Except for lake use and horseback riding and hiking on the trail system emanating from the village, most visitor use occurs in the immediate Lake McDonald Lodge developed area. Some off-trail hiking also occurs on the Lake McDonald shoreline north and south of the lodge.

The lodge closes from mid-September to late May. Little visitor activity occurs in the developed area during these months. The Park Service closes the lodge area to visitor entry during the late fall and spring eagle use periods.

Private cabins in the lodge area are used as vacation cottages or summer residences and are not occupied in the winter.

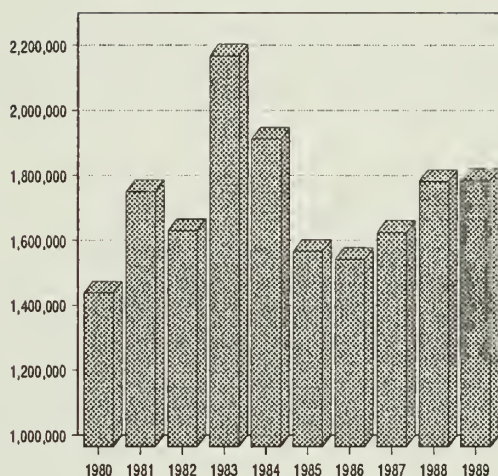
EXISTING DEVELOPMENT

Most visitor facilities at Lake McDonald are owned by the government and operated by three concessioners: Glacier Park, Inc. (GPI), Glacier Park Outfitters, Inc. (GPO), and Glacier Park Boats, Inc. (GPB). The motel is an inholding owned by GPI. Eight additional private parcels at the north end of the developed area and two at the southern end have residential development.

GPI operates the following facilities: Lake McDonald Lodge, including 32 guest rooms, a gift shop, a restaurant, and a lounge; 38 lodging units in 13 cabins along the lakeshore north of the lodge; 30 lodging units at the motel; a 120-seat coffee shop; a general store; a gas station with a post office; and a dispensary in a small building next to the lodge. GPI also operates a bus transportation system offering tours of the park out of Lake McDonald Lodge.

GPO operates horseback riding trips and pack trips out of a horse corral east of the lodge. This facility serves as the trailhead for trips to the Sperry Chalet in the mountains south of Lake McDonald.

Figure 1: Annual Visitor Use, 1980-90



GPB operates tour boat excursions and boat rentals at a dock near the lodge.

The National Park Service provides interpretive programs in the auditorium near the lodge. The Park Service maintains the roads, parking areas, walks, trails, bridges, and water and sewer systems for the developed area. The domestic water supply is a deep well. Most wastewater is pumped from the lodge area to a spray field near Apgar, which has adequate capacity. On-site septic tank/leach field systems are still used for the motel and some private residences.

About 160 GPI employees are now housed at Lake McDonald in 11 separate buildings. These buildings are deteriorated, do not meet minimum space requirements, are in the 100-year floodplain, and are in visitor use areas.

About six GPO employees rent an NPS cabin on the lakeshore just north of the guest cabins. About four GPB employees are currently housed in a cabin south of the lodge area.

The Lake McDonald Lodge developed area is accessible from three different points along Going-to-the-Sun Road. The main entrance is a divided access road with a planted median and parking along the outer edges of each lane (see Existing Development map). This main entrance takes visitors directly to the lodge at the center of the developed area. Another road that parallels Going-to-the-Sun Road and intersects it at the north and south ends of the development provides secondary access through the lodge area. Most of the development is consolidated in about 80 acres between Going-to-the-Sun Road on the east, Lake McDonald on the west, and the lodge area road intersections on the north and south. The horse corral is just east of Going-to-the-Sun Road.

PROPOSAL

VISITOR EXPERIENCE

The proposal for Lake McDonald is to provide high quality visitor facilities, reasonable cost services, and site development that is compatible with the historic character of the area, while protecting critical natural resources such as the bald eagle and its riparian use zones. Primary visitor activities will continue to be lodging, dining, boating on Lake McDonald, bus tours on Going-to-the-Sun Road, and hiking and horseback riding on trails near the developed area.

The visitor experience will be improved by providing information services, simplifying traffic circulation, centralizing village parking, facilitating pedestrian circulation, and removing most concession employee housing from the center of visitor use areas. Lodging facilities will be clustered, encouraging visitors to walk in the lodge/cabin area. New or rehabilitated facilities will be accessible to visitors with disabilities. New development will comply with high visual quality standards in keeping with the splendid visual resources in Glacier National Park and the rustic historic setting at Lake McDonald Lodge.

This document does not propose any changes to the visitor use season at the Lake McDonald Lodge developed area.

DEVELOPMENT

Circulation and Parking

Circulation and parking will be redesigned to clarify traffic routes, enhance vehicular and pedestrian safety, increase the parking capacity, separate employee and visitor facilities, promote a pedestrian environment, and reduce vehicular traffic in critical bald eagle use areas.

The road network will be reduced by deleting the southern lodge area road link with Going-to-the-Sun Road (see Proposal map). Access to the cabins at the south end of the developed area will be by a short driveway (the existing road pavement) ending in a cul-de-sac. The existing main entrance drives and parking at Lake McDonald Lodge will be removed and replaced by a two-lane, curvilinear access road connecting Going-to-the-Sun Road with the lodge area road and the circular drop-off loop at the lodge.

The Park Service will construct a 180-space central parking lot on the east side of the lodge area road, north of the new main entrance road, and opposite the caretaker's house. This lot will be roughly where parking is now and will contain spaces for passenger cars and oversized vehicles. Close-in parking will be designated for people with disabilities. The 180 spaces will replace the existing 100 spaces near the coffee shop and east of the lodge and the 30 spaces currently scattered throughout the cabin area, and provide 50 additional spaces for day-use parking as specified in the 1986 plan. Some of the additional day-use parking will serve the visitor transportation system if one is established in the future, and some will accommodate employees who live off site and carpool to the lodge area for work (see "Employee Housing," below, and the parking area calculations in appendix D).

The lodge area road will end just south of the lodge, across Snyder Creek, in a bus parking lot serving 10 small GPI tour buses and 3 large tour buses, which are typically brought in by large tour groups on cross-country or regional trips.

Total parking proposed for the developed area is about 250 spaces, including 29 existing spaces at the store, 13 tour bus spaces, about 30 spaces for employees near the motel, and about 180 spaces in the new central lot (which will include handicap spaces and oversized vehicle spaces). This total does not include the short-term check-in spaces in front of the lodge. Parking for the Sperry Chalet trailhead is currently provided in the main parking area at the site, and it will be incorporated into the new central parking area. It will not be separately designated in the new parking area, but Chalet visitors will park closest to the corral on the east side of the lot where it will not conflict with other village parking needs.

The lodge area road will be retained intact north of the lodge to the store, where a circular drive (similar to a cul-de-sac) will be installed to aid traffic returning to the lodge. The existing intersection with Going-to-the-Sun Road will be redesigned into a short one-way exit drive leading away from the developed area. Internal circulation roads will lead from the circular drive to the private lands, the motel, and the new maintenance building and fire truck garage. The existing parking provided at the motel (12 spaces) and in front of the store (29 spaces) will remain. The parking spaces now provided in the cabin area will be removed and relocated to the new central parking lot. A drop-off zone and cul-de-sac will be provided at the end of the cabin access drive for visitor convenience upon arrival and departure. Other vehicle travel through the area will be discouraged through design treatments and signing, promoting a pedestrian-oriented setting. The existing short drive from the cul-de-sac to the north side of the lodge will be converted to a pedestrian walkway and access road for service vehicles only.

The Park Service will improve pedestrian access by adding walkways along the lodge area road. Walkways along the west side of the road will extend continuously from the lodge north to the store. Crosswalks will help pedestrians reach the east side of the road at the central parking area. Walkways along the east side of the road and next to the parking lot will connect the lot and lodge to the trail leading to the horse corrals. Pedestrian access will also be improved by a new footbridge to replace the existing one over Snyder Creek at the southwest corner of the lodge. The walkway behind the lodge will connect to a curvilinear walkway leading to the boat dock on the lakeshore. All the walkways and the bridge will be designed to be free of barriers to disabled persons, so that all visitors may enjoy them. These proposed walkway improvements will link the existing walkway segments throughout the site into a continuous paved pedestrian system that will facilitate visitor circulation in the lodge area.

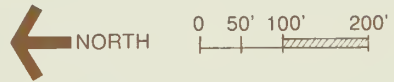
A coordinated sign system will also assist visitor orientation and circulation in the area. All circulation improvements, vehicular and pedestrian, will comply with the Uniform Federal Accessibility Standards.

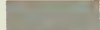
Visitor Contact Station

As approved in the 1986 DCP, the Garden Court building will be remodeled into a visitor contact station, which will also include ranger office space and visitor rest rooms (see the schematic floor plan). The Garden Court building is centrally located just north and east of the lodge, in the core of the developed area. Its high visibility near the main entrance and proximity to other visitor facilities, makes it an ideal location for visitor-oriented functions. About one-half of the first floor (650 sf) will become a visitor contact station, with a counter, brochure and map displays, a small waiting area for visitors seeking information, a ranger's office, and an employee lavatory. The other half (700 sf) will become rest rooms to serve the needs of day-use visitors. The upper floor will be remodeled to house senior employees (see "Employee Housing," below).

PROPOSAL LAKE McDONALD

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-  PRIVATE LAND
-  NEW ROADS, PARKING, AND WALKWAYS
-  NEW VEGETATION
-  NEW BUILDING
-  BUILDING OR PAVEMENT TO BE REMOVED

EMPLOYEE OUTDOOR
RECREATION AREA

PROVIDE ADDITIONAL EMPLOYEE
PARKING - 18 SPACES

REMODEL AND EXPAND
MOTEL AS DORMITORY

CONSTRUCT PATH

CONSTRUCT NEW LODGING
AND RESTAURANT

DROP ZONE

CONSTRUCT
REHABILITATE

CONVERT GARDEN
TO VISITOR CENTER
(REHABILITATE SE
HOUSING)

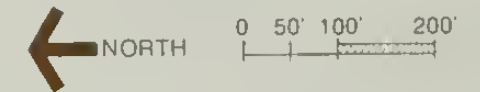
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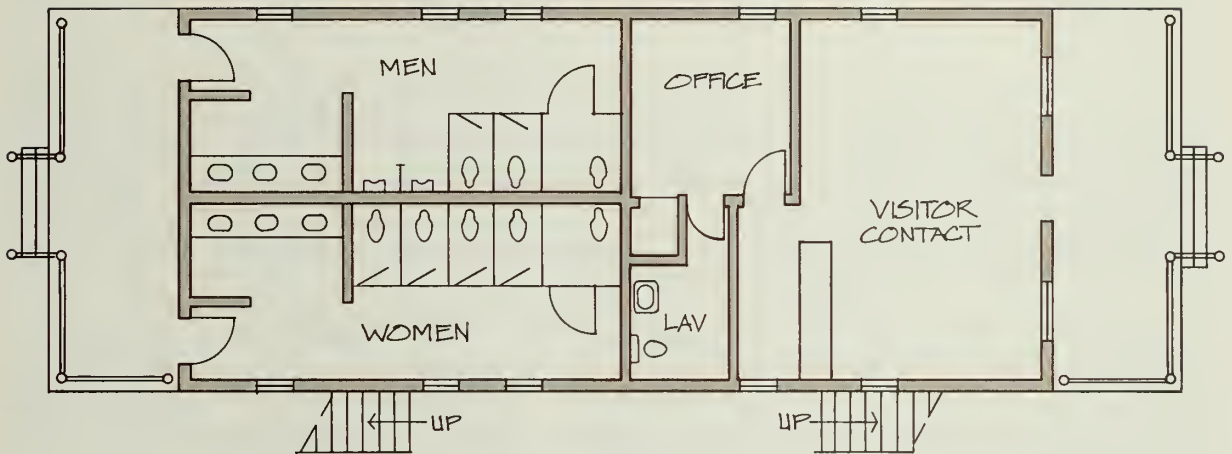
PROPOSAL LAKE McDONALD

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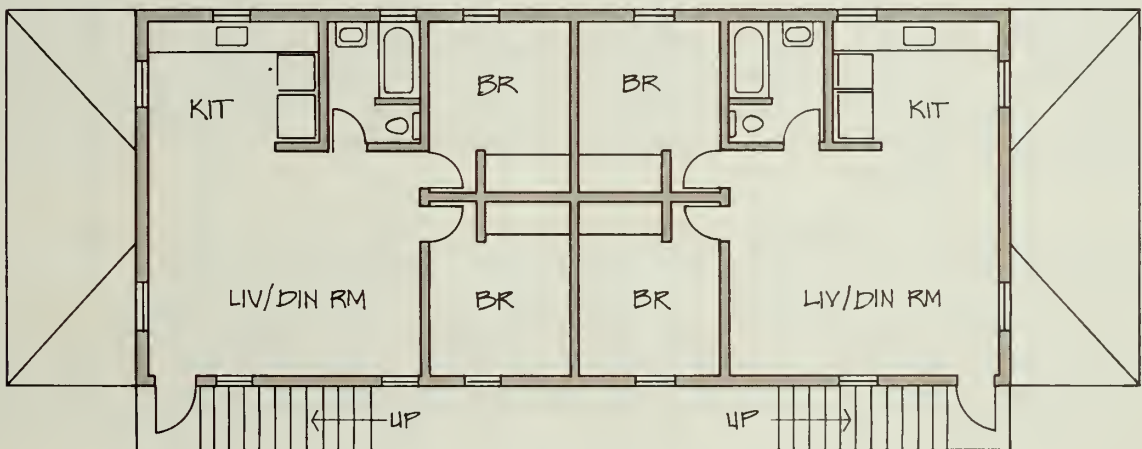


- PRIVATE LAND
- NEW ROADS, PARKING, AND WALKWAYS
- NEW VEGETATION
- NEW BUILDING
- BUILDING OR PAVEMENT TO BE REMOVED





1ST FLOOR PLAN



2ND FLOOR PLAN

1ST FLOOR		
VISITOR CONTACT		650 SF
RESTROOMS		700 SF
SUBTOTAL		1,350 SF

2ND FLOOR		
2 TWO BEDROOM APTS		
2 @ 675 SF		1,350 SF
TOTAL		2,700 SF

SCHEMATIC FLOOR PLAN GARDEN COURT BUILDING

GLACIER NATIONAL PARK
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NATIONAL PARK SERVICE

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Lodging

The 21,000 square-foot Lake McDonald Lodge provides 32 guest rooms and 13 rustic cabins with 38 units. (During recent rehabilitation work on the lodge and associated cabins, three rooms were removed from service.) The motel provides an additional 30 rooms, bringing the total number of existing guest rooms in all lodging facilities to 100. The lodge usually opens by early June and closes in mid-September.

The 1977 master plan for Glacier National Park states that concessioner-provided overnight accommodations are adequate and that modernization and upgrading of existing facilities is a key objective. Therefore, neither the proposal nor any of the alternatives in this document exceed the 1977 levels of overnight guest accommodations in the Lake McDonald Lodge area, which was 103 rooms. In those instances where guest rooms are removed or used for some other purpose, the plan proposes to replace those units, plus the three rooms removed since 1977, on a one-for-one basis.

As approved in the 1986 DCP, the Lake McDonald Lodge will continue to operate on its current site. The risk of flooding at the lodge will be further reduced by installing additional riprap on the north side of the creek (NPS 1986). Rehabilitation work will be completed on the lodge and associated cabins. This includes remodeling the kitchen to improve safety and increase functional efficiency, rehabilitating the second and third floor corridors and guest rooms to restore the historic character and improve the appearance, rehabilitating 14 cabins to preserve historic fabric and restore interior character, and providing a barrier-free path to the auditorium and boat dock.

The 30 guest rooms in the motel will be converted to concessioner employee housing, and replacement units will be constructed in a more appropriate location near the present cabin units (see Proposal map). The new lodging structure will have up to 33 units to replace the 30 currently in the motel plus the three lost when the lodge and some of the cabins were rehabilitated. The new building will be architecturally compatible with the main lodge and adjacent structures in the historic district (see the "Design Guidelines" in appendix C). Appropriate landscape plantings will also be installed to reduce this new structure's impact on the historic scene.

Food Service

Food service is needed in the Lake McDonald Lodge area to serve guests staying in overnight accommodations, campers staying at the two nearby NPS campgrounds, some of whom use the food and beverage services in the lodge area, and many day-use visitors and scheduled tour bus groups who stop to eat as they travel along Going-to-the-Sun Road.

The Lake McDonald Lodge dining room provides a table service restaurant with a finer dining atmosphere and a larger seating capacity better suited to handle the longer times required for restaurant service. The coffee shop provides less formal service; however, a 1980 study of concession facilities in Glacier concluded that the coffee shop "fails to meet the criteria of a fast-service, low-cost restaurant, which is needed for the area." Some type of fast-food service is needed at Lake McDonald, particularly for day users who want a quick, inexpensive meal. The need for fast-food service is most critical during the lunch hour, when patronage is heaviest.

The concession facility study recommended converting the existing coffee shop building to a fast-food restaurant. It also identified significant equipment changes and remodeling

needed to accomplish the transition (NPS 1980). For several reasons, it is now proposed to remove the existing coffee shop and to replace it with a new restaurant oriented more to fast-food service in the proposed new lodging structure next to the present cabin units. The existing coffee shop building is intrusive on the historic scene of the Lake McDonald Historic District. Its incongruous "1960s" architecture dominates the approach to and entire east side of the lodge complex. The existing building is also in an area needed to consolidate visitor parking for the lodge area. Both of these problems will be solved by the proposed relocation of the coffee shop.

The new coffee shop (about 3,800 sf) would probably have a counter where visitors could place their orders and tables (about 120 seats). Visitors could eat inside or take the food out of the restaurant. "Fast-food" is a generic term for a limited-menu, quick-service restaurant. It might feature a single food item, such as chicken, tacos, pizza, or hamburgers, or a combination of quick-service items (chicken, fish, hamburgers, salad bar, etc.). It could offer take-out service or a combination of both take-out and table service. The details of this coffee shop will be developed during facility design.

Service Station

The Lake McDonald gas station building will be retained and used exclusively for the current post office function. The gas service will be discontinued, and the aging underground storage tanks will be removed. The storage tanks predate current federal regulations for underground storage of hazardous materials, and they would have to be replaced at considerable expense in their current location if the gas service was retained. Gas service will be available in West Glacier, about 11 miles away. Gas pumps for concessioner vehicles will be provided near a new maintenance building proposed for the north end of the developed area (see below). The large paved area around the building will be removed, and the access route will be redesigned to serve the post office, with about four parking spaces provided.

Employee Housing

Housing for concessioner and NPS employees is needed to replace current housing that is substandard and in poor condition, in the 100-year floodplain, and in visitor use areas, creating conflicts between visitors and employees. The proposal is to house about 60 percent of the employees on site in the Lake McDonald area and about 40 percent outside the park in the West Glacier area, at facilities to be arranged by the concessioner or by the employees. Off-site employees will carpool or use shuttle buses to get to and from work.

About 172 employees will be needed to serve the Lake McDonald Lodge area (the current 170 concession employees and two NPS employees to staff the proposed visitor contact station). Twenty additional employees (bus drivers and security, supervisory, and kitchen employees) might be needed to support an off-site housing complex if one is provided by the concessioner (see appendix B). Needed housing types include apartments, single- and double-occupancy dormitory rooms, and trailer/RV pads. The approximate numbers of housing units proposed for concessioner and NPS employees on site at Lake McDonald and off site in the West Glacier vicinity are shown in table 1.

TABLE 1: CONCESSIONER AND NPS HOUSING, PROPOSAL

	<u>FACILITY (OCCUPANT)*</u>	<u>ROOMS</u>	<u>PERSONS</u>
On Site:	Motel (GPI)	42	86
	Caretaker's house (GPI)	2	2
	Dispensary (GPI)	1	1
	Carpenter shop (GPI)	<u>2</u>	<u>6</u>
	Subtotal	47	95
	Garden Court (GPB)	4	4
	Cabin (GPO)	1	6
	Cabin (NPS)	<u>1</u>	<u>2</u>
	Subtotal	<u>6</u>	<u>12</u>
	On-site Totals	53	107
Off site	To be determined** (GPI)		<u>65***</u>
	Grand Total		172

*Occupant assignments are tentative and subject to adjustment during plan implementation.

**Off-site housing types will be determined by the concessioner and its employees.

***Up to 20 additional employees may be needed depending on the off-site housing option selected.

About 160 GPI employees are now housed in dormitory units which, by NPS standards for square footage, would normally be suitable for only 88 persons. All the dorms except three (Garden Court and girls' dorms 1 and 2) are in the 100-year floodplain of Snyder Creek. The following substandard dormitory buildings will be removed: boys' dorms 1 and 2, Hydro, Johnson, girls' dorms 1 and 2, and Jammer. Two dormitories, Snyder Hall and Cobb House, are historic structures and will not be removed. However, they can no longer be used as employee housing because they are in the floodplain. Snyder Hall will be converted to an employee recreation center, and Cobb House will be converted to office space, as specified in the 1986 DCP. As discussed above, the Garden Court building will be remodeled to serve as both a public use facility and employee housing for senior employees.

Consideration was given to also retaining Johnson and Hydro dorms, which were built in 1918. However, it was determined that the high cost of rehabilitating these structures (estimated at \$200,000) was not warranted by their usefulness or cultural significance. Both structures were relocated from their original sites, and both buildings have been significantly altered for their current functions. They are minor structures in the developed area that do not contribute architecturally according to the National Register forms for the historic district and were excluded from the district when the boundary was drawn. Also, their floodplain locations would substantially restrict the buildings' potential for public or employee use.

To replace the existing dormitories, the motel will be converted to employee housing and expanded through a 12-room addition to the south unit. The addition will also include a small employee laundry room. The expanded motel will provide a total of 42 rooms for 86 employees (40 double-occupancy and 2 triple-occupancy rooms).

The caretaker's house will continue to provide two apartment units, housing one employee in each unit, and the dispensary building will continue to house the nurse. The carpenter

shop, just northeast of the store, was recently converted into housing for six persons in two triple-occupancy rooms.

Glacier Park Outfitter employees will continue to be housed on site in a large government-owned cabin near the private cabins north of the lodge. Glacier Park Boats employees will occupy the second floor of the Garden Court building, which will be remodeled as discussed above. These housing units will offer kitchen facilities so that these concession employees will be independent from other concession employees at Lake McDonald. GPO and GPB will be minimally affected by this housing proposal. All on-site housing assignments are tentative and subject to adjustment during plan implementation.

The remaining 65 GPI employees will be housed outside the park at facilities to be arranged by the concessioner or the employees. This could be at the Belton Chalet complex (listed on the National Register of Historic Places) or other existing structures or new buildings in the West Glacier area. Another option that will work well with the aging U.S. work force will be to seek trailer spaces outside the park for older employees that have their own trailer or RV to bring to the area. This type of housing has been increasingly used at other National Park areas where concessioners have had similar difficulties in retaining college-aged employees. Arrangements could be sought with local recreational vehicle campgrounds in the West Glacier area to provide long-term space rental at a reasonable cost. Additional information on these off-site options and their economic feasibility is contained in appendix B.

Lake McDonald employees will continue to need parking on site. Based on concessioner rules, which discourage or prohibit personal vehicles, the past concessioner experience, and the actual number of vehicle permits issued to concessioner employees in 1988, the following criteria were developed to determine how much parking will be required to serve the housing facilities: one parking space for each person in a single-occupancy unit, and one parking space each for 21 percent of the people assigned to double-occupancy and triple-occupancy units.

The parking spaces for people living on site will be near the motel. The total employee parking required under the proposal will be about 60 spaces, depending upon the final mix of housing unit types and the total number of employees. This total will be divided between about 35 spaces at the motel site and about 25 spaces in the consolidated village parking area. See appendix D for additional information on parking needs.

The former horse corral site north of the motel will be used for an employee recreation area for field games such as volleyball and frisbee. This site is already disturbed and is removed from visitor use areas.

Concession Maintenance Building

The 1986 DCP called for a new 800-square-foot maintenance building at Lake McDonald. Based upon a 1988 visual inventory of the existing space occupied by maintenance and materials storage functions in various buildings at the site, this size building will be too small. These functions are now housed in the carpenter shop, the caretaker's house garage, part of Johnson dorm, the Cobb House garage, and two small sheds. The area now dedicated to maintenance uses is estimated to be approximately 1,500 square feet. The new maintenance building should be about 1,200 square feet, and all maintenance and storage functions should be consolidated in that new, more efficient structure. The maintenance building will be at the north end of the developed area, separated by plant and fence screening from visitor use areas and Going-to-the Sun Road (see Proposal map).

The concessioners' fuel storage will also be relocated to this site. GPI fuel storage will be in a new above-ground EPA-approved storage tank. GPB tour-boat fuel will be stored in a portable trailer or truck-mounted tank that will be parked in this area. The mobile fuel trailer normally parked near Cobb House will be removed from the floodplain site.

Fire Station

The existing fire station is poorly sited and too small for the fire truck and fire-fighting equipment. As proposed in the 1986 DCP, the station will be removed and a larger one built to replace it. Under this proposal, the structure will be placed at the north end of the developed area near the new maintenance facility. This will remove the fire equipment from visitor use areas.

Other Facilities

As stated above, Cobb House will be remodeled for NPS office use. Snyder Hall will be adapted and remodeled to serve as a recreation center and concessioner offices. The employee recreation currently occurring in the auditorium will be transferred to Snyder Hall, and the additional space in the auditorium will be used for interpretive programs. The auditorium building will be rehabilitated to preserve historic fabric, adapt the recreation space to interpretive functions, install an audiovisual system, add public rest rooms, and remove a severely deteriorated nonhistoric addition on the back of the building.

The dispensary building will be retained at its current site and will be available for emergency medical service to visitors and employees. The facility will contain a nurse's station, exam room with minor emergency equipment, and a small apartment for the nurse. The structure will be made accessible to persons with disabilities.

The abandoned sewage treatment plant will be removed as proposed in the 1986 plan.

As facilities in the Lake McDonald area are redeveloped, the existing utilities will be evaluated and rehabilitated as needed to bring them up to code.

EAGLE CONSERVATION MEASURES

Concern about possible impacts on bald eagles and compliance with the Endangered Species Act prompted the National Park Service to request a team of eagle experts to meet and analyze the relative potential impacts of a series of development options and to formulate recommendations to mitigate the impacts. The eagle team was composed of professional biologists from Duke University, Montana State University, the U.S. Forest Service, the Montana Fish, Wildlife, and Parks Department, and the U.S. Fish and Wildlife Service.

The development options considered by the team included retaining the existing housing (no action); developing replacement housing on a site south of Snyder Creek (proposed in the 1986 DCP), a site behind the existing coffee shop, or the existing motel site; and relocating employee housing to park headquarters or outside the park. For the on-site housing options the team considered housing all 180 employees at Lake McDonald or housing only a minimum of 30 employees at the lake and housing the remainder off site.

The current proposal is a combination of options 3(a) and 3(b) analyzed by the eagle team. Those options called for the use of the motel site to house either all 172 employees on site (alternative 3(a)) or to house only a minimum of 30 employees on site (alternative 3(b)). Both options included redesign of circulation routes and parking areas. The proposal of housing 107 employees on site was considered and adopted after the eagle team met. This proposal was based on the analysis provided by the eagle team and other planning considerations for the lodge area. The impacts of this proposal are expected to be about halfway between the impacts of options 3(a) and 3(b) analyzed by the eagle team.

Of all the options analyzed, those having the least impacts on eagles were those that would relocate all employee housing to park headquarters or to a site outside the park. However, those options were analyzed by NPS concession managers and determined to be economically infeasible for the concessioner (see appendix B). Of all the options involving on-site employee housing at Lake McDonald, the least disruptive to eagles would be the option of leaving the existing housing in place (the no-action alternative). This option was determined to be infeasible because it would perpetuate housing in the 100-year floodplain and because the existing facilities subject employees to substandard living conditions. The next best options for avoiding long-term impacts on eagles were to replace housing at either the coffee shop site or the motel site. The perceived differences among these two options was minimal. The motel site was selected because it offered more buildable space and was outside the visitor use area.

Based on the recommendations of the eagle team and NPS biologists, the proposal will preclude development in the eagle roost area south of the lodge. The lodge area road will be obliterated in the roost area to improve the habitat between the lake and Going-to-the-Sun Road. The critical perch trees near the mouth of Snyder Creek will be preserved. Care will be taken during design of the circulation and parking improvements and other landscape modifications to avoid removing important screening trees. To maintain other important perch and screening trees, no tree removal for vista clearing will be allowed along the lakeshore near the lodge (although some minor brush removal will be permitted to enhance views near the cabins).

The proposal will move about 40 percent of the employees off site, reducing the total overnight population at Lake McDonald (employees, guests, and private residents) by about 20 percent.

Habitat will be improved by undertaking an extensive tree-planting program using native species, including trees preferred by eagles. Conservation measures will also be incorporated into construction contracts. No construction activity will occur during the November-December migration period; no daytime construction will occur during the March 1 through May 15 portion of the nesting period; and more construction will be accomplished during the summer visitor season to reduce work needed during the off-season when eagle use near the lodge is greater.

PLAN IMPLEMENTATION COSTS

Preliminary development cost estimates are summarized in table 2. Figures include construction costs, construction supervision, and contingencies. For a additional details, see appendix A.

TABLE 2: SUMMARY OF ESTIMATED DEVELOPMENT COSTS, PROPOSAL

<u>ITEM</u>	<u>COST</u>
Employee housing	\$1,065,000
Circulation and parking	668,000
Lodging	3,868,000
Food service	1,231,000
Service station	85,000
Concession fuel storage	78,000
Recreation hall	316,000
Concession maintenance building	218,000
Fire station	116,000
Visitor contact station	223,000
Utilities	450,000
1986 DCP carryover items	<u>4,761,000</u>
Total	\$13,079,000
Advance and project planning	<u>\$2,496,000</u>
Grand total	\$15,575,000

NPS policy requires the concessioner to undertake, to the extent it is economically feasible, all costs of its own facilities and utilities, roads, parking, and similar infrastructure. The responsibility for development funding will be subject to further negotiations between the concessioner and the National Park Service.

Annual NPS operations and maintenance costs will increase by approximately \$40,000. Implementation of the proposal will require additional seasonal personnel to staff the new visitor contact station.

The annual cost of concession operations will depend on the off-site housing option selected by Glacier Park, Inc. These costs are analyzed in appendix B. Operations costs for the other two concessioners will not be substantially affected by the proposal.

ALTERNATIVES

This section describes alternatives to the proposed development concept plan, concentrating on where they differ from the proposal.

ALTERNATIVE A: MAXIMUM HOUSING ON SITE

Alternative A would house all Lake McDonald Lodge area employees on site. The existing dormitory buildings identified in the 1986 DCP for removal would still be removed, and the motel would be converted to dormitory use as in the proposal. An additional dormitory building would be constructed at the north end of the site, and the caretaker's house, carpenter shop, and Garden Court dormitory would also be used for employee housing (see Alternative A map). The Garden Court building would additionally house a visitor contact station and public rest rooms, as in the proposal. No housing would be provided in Snyder Hall or Cobb House because they are in the Snyder Creek floodplain. These two facilities would be converted as in the proposal to an employee recreation center and offices, respectively.

The lodging displaced from the motel would be replaced in a new structure to be built near, or attached to, the existing coffee shop, which would be retained. This new structure would have 33 lodging units to replace the 30 units displaced at the Stewart Motel plus the 3 units lost in previous rehabilitation work on the lodge. The food service provided at the coffee shop would remain unchanged.

Village circulation would be modified to provide access only from the north and south ends of the site, and the current main entrance at the middle of the site would be removed. Acceleration/deceleration lanes would be provided at the entrance points, and those intersections would be realigned perpendicular to Going-to-the-Sun Road. A large central parking lot would be developed parallel to and east of the lodge area road, in front of the coffee shop. The capacity would be about 180 cars. Thirty additional parking spaces would be provided at the rear of the lodge cabins and connected by a loop drive to the lodge area road. The gas station function would be retained, and the driveways and paved area would be more formally defined by adding planting islands along the lodge area road and the spur road between the gas station and the coffee shop. These islands would also define the intersection of those two roads to increase safety and reduce driver confusion.

As in the proposal, fuel for tour boats would be stored in a portable tank located in the maintenance area. The existing storage trailer would be removed from the floodplain site.

New structures to house maintenance operations and the fire truck would be sited similarly to the proposal, north of the new dorm building and the private lands. A new paved road would be constructed from the existing motel access road to reach these facilities. As in the proposal, the maintenance structure would be about 1,200 square feet and the fire truck garage would be about 800 square feet.

ALTERNATIVE B: MAXIMUM HOUSING OFF SITE

Under alternative B all concession employees except two management personnel would be housed off site at a new facility in the park headquarters area. This would include two new 58-unit dormitories south of the headquarters building (see Alternative B map). Also, a separate employee dining hall, a four-unit apartment building, employee recreation facilities, and a 70-vehicle parking lot would be developed at that site to serve these employees.

Only the caretaker's house would be retained for on-site concession employee housing at Lake McDonald Lodge. Shuttle busses for the employees would eliminate the need for almost all employee parking in the lodge area.

There would be no change proposed for lodging facilities at the site, nor for food services.

The village circulation routes would be redeveloped as in alternative A. The gas station would be removed. Tour boat fuel storage, the recreation hall, the visitor contact station, the maintenance building, and the fire truck garage would all be developed as in the proposal. The nonhistoric abandoned dormitories would be demolished as described for the proposal and in the 1986 DCP.

This alternative would require a subsidy to make it economically feasible for the concessioner to operate (see appendix B).

ALTERNATIVE C: NO ACTION

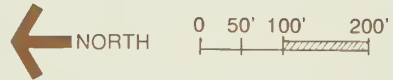
Under this alternative, the current overcrowded and substandard dormitories would continue in use. Maintenance and limited rehabilitation activities would continue. There would be no major clarification of vehicular circulation routes. Parking would remain fragmented along existing roads and in the cabin area and the capacity would remain unchanged. For further information on the no-action alternative, see the "Area Description" section of this document.

ALTERNATIVES CONSIDERED BUT REJECTED

Numerous alternatives were considered during the preparation of this report. The site proposed for employee housing in the 1986 plan was reevaluated and rejected because it would intrude on the prime bald eagle roosting area south of the village. A site behind the coffee shop was rejected because of size limitations, adverse visual impacts, and concern that it would still house employees close to major visitor use areas. An alternative to house most or all employees off site at the Belton Chalet complex in West Glacier was rejected because of economic feasibility considerations, site constraints, and the adverse impacts on the historic setting of adding a required three-story dorm to the complex. Several other sites inside and outside the park were analyzed and rejected because of potential resource impacts, conflicts with visitor use, or the extensive commuting distances required. The proposal and alternatives analyzed in this report represent a reasonable range of options with significantly different impacts on area resources and management costs.

ALTERNATIVE A LAKE McDONALD

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- PRIVATE LAND
- NEW ROADS, PARKING, AND WALKWAYS
- NEW VEGETATION
- NEW BUILDING
- BUILDING OR PAVEMENT TO BE REMOVED

LAKE McDONALD

CONSTRUCT FIRE STATION

CONSTRUCT MAINTENANCE BUILDING

CONSTRUCT NEW DORMITORY

PROVIDE PARKING
(10 SPACES EACH AREA)

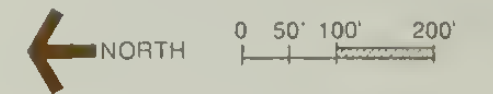
REMODEL AND EXPAND MOTEL
AS DORMITORY

LANDSCAPE OPEN AREA AND SCREEN CABINS

PROVIDE CABIN PARKING
(30 SPACES)

BUS DRIVE

ALTERNATIVE A
LAKE McDONALD
GLACIER NATIONAL PARK
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DSC • APR 90 • 117 • 401B1A

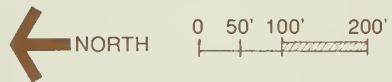


- PRIVATE LAND
- NEW ROADS, PARKING, AND WALKWAYS
- NEW VEGETATION
- NEW BUILDING
- BUILDING OR PAVEMENT TO BE REMOVED



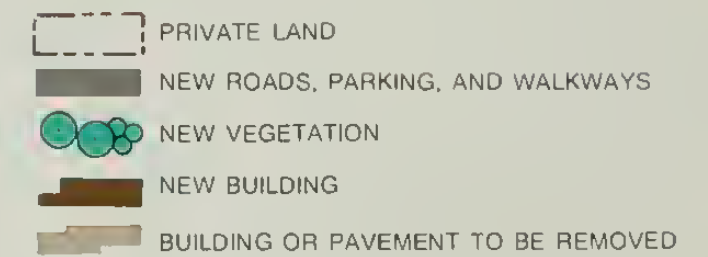
ALTERNATIVE B LAKE McDONALD

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NATIONAL PARK SERVICE
DSC • APR 90 • 117 • 40182A



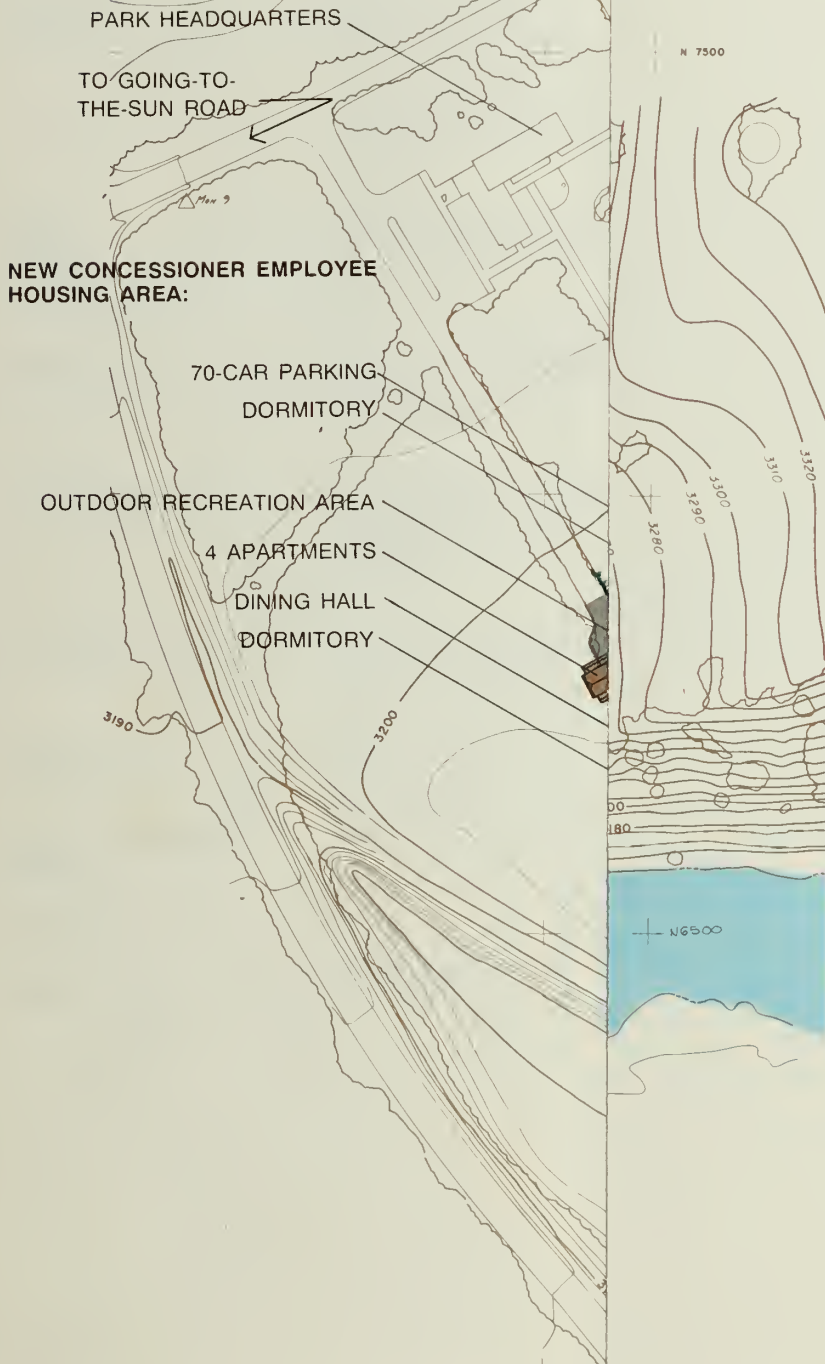
- PRIVATE LAND
- NEW ROADS, PARKING, AND WALKWAYS
- NEW VEGETATION
- NEW BUILDING
- BUILDING OR PAVEMENT TO BE REMOVED

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ALTERNATIVE B EMPLOYEE HOUSING HEADQUARTERS AREA

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ALTERNATIVE B EMPLOYEE HOUSING HEADQUARTERS AREA

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PARK HEADQUARTERS
TO GOING TO
THE SUN ROAD
NEW CONCESSIONER EMPLOYEE
HOUSING AREA:

70 CAR PARKING
DORMITORY
OUTDOOR RECREATION AREA
4 APARTMENTS
DINING HALL
DORMITORY

PARK
MAINTENANCE

FLATHEAD RIVER

FORK

MIDDLE



TABLE 3: SUMMARY COMPARISON OF THE PROPOSAL AND ALTERNATIVES

<u>ISSUES</u>	<u>PROPOSAL</u>	<u>ALTERNATIVE A</u>	<u>ALTERNATIVE B</u>
Employee Housing	Convert and expand the motel for most housing; relocate some employees outside the park	Convert and expand the motel and add one dorm in the motel area to accommodate all housing on site	Develop housing for all concession employees off site at the park headquarters area
Village Circulation and Parking	Redesign the middle access road as the primary entrance/exit; provide a secondary exit road near the store; eliminate the south access road; consolidate parking	Remove the middle access road and consolidate parking	Same as alternative A
Lodging	Develop replacement lodging near the cabins; move cabin parking to the central lot	Develop replacement lodging around coffee shop; keep cabin parking near the cabins	Retain motel lodging; no need for replacement units
Food Service	Remove coffee shop and develop a new restaurant in or near the new lodging structure	Retain existing coffee shop	Same as alternative A
Service Station	Discontinue gas sales and relocate concessioner fuel storage; continue post office and redesign parking	Retain gas station and post office; add traffic island to improve vehicle circulation near these facilities	Remove gas station
Tour Boat Fuel Storage	Provide portable fuel storage tank and keep in maintenance area	Same as the proposal	Same as the proposal
Recreation Hall	Convert Snyder Hall for recreation use	Same as the proposal	Same as the proposal
Concession Maintenance Building	Develop at north end of village	Similar to the proposal	Same as the proposal
Fire Station	Develop at north end of village	Similar to the proposal	Same as the proposal
Visitor Contact	Remodel Garden Court dorm for contact station	Same as the proposal	Same as the proposal

ENVIRONMENTAL IMPACTS

This section describes the environmental impacts of the proposal and alternatives. The analysis of alternatives concentrates on where they differ from the proposal.

IMPACTS OF THE PROPOSAL

Natural Resources

Soil and Vegetation. Construction of new roadways, parking lots, and buildings would take place in the existing developed zone or along the zone margin. In general, the majority of disturbance to soil and vegetation would affect areas that were previously disturbed and now support lawn, other managed landscapes, buildings, or pavement. Some tree clearing would occur along the northern margin of the developed area for building construction, and some individual trees in the interior of the developed area might be removed. The larger trees in the area are recognized for their value as eagle (and other bird) perches and for providing shade, screening, and other aesthetic values, and their removal would be avoided wherever possible through sensitive facility siting and design. The old-growth trees next to the mouth of Snyder Creek that have been identified by biologists as important eagle perches would be outside the developed area and would not be affected (NPS 1989a). Grading and excavation for construction would disturb soil and vegetation by removing topsoil, organic material, and surface vegetation. Some areas would be regraded and planted with nonnative turf grass (pedestrian areas) or with native shrubs and trees to provide screening. Other areas would be permanently covered with impermeable pavement or buildings.

For the purpose of comparing the impacts of the proposal and alternatives, two acreage figures are considered important: the amount of new forest clearing required, and the net amount of increase or decrease in impermeable surfaces, taking into account all new facilities and all existing facilities to be removed. Under the proposal, about 0.6 acre of forest would be cleared. The net change in impermeable parking and building surfaces would be an increase of about 0.4 acre.

Control of noxious plants, such as spotted knapweed, would be considered when revegetating the area. Existing colonies of knapweed along the access road and parking area would be destroyed in the process of construction. Revegetated areas would be planted in grass and other preferred plants. With prompt planting and follow-up weed control, desirable vegetation would be expected to outcompete volunteer noxious plants.

Wildlife. No significant impacts on general wildlife populations are known to occur now, and no change would be anticipated under the proposal. The lodge area is generally not high-quality habitat because of the surrounding dense forest. Snyder Creek near the lodge has been channelized and is not an especially valuable aquatic habitat. Some small birds and mammals would continue to be habituated to feeding by humans. Black bears would continue to occasionally wander into the area, which could potentially lead to their becoming habituated to feeding on garbage; however, existing policies and management practices would prevent this from becoming a problem.

Birds and small mammals using the area would be temporarily displaced by construction equipment activity. The larger, more transient mammals might pass through the area during construction, or they might avoid the area during periods of noise and traffic. There would be no substantial long-term loss of bird or mammal habitat. Fish spawning would be unaffected (see "Water Resources," below).

Threatened and Endangered Species. The eagle analysis team evaluated potential impacts on the resident pair and their offspring throughout the year and on wintering migratory eagles using the head of Lake McDonald around the lodge. The primary study area extended from a point 0.25 mile below the Sprague Creek campground (1 mile southwest of the lodge), around the lakeshore past the lodge, to the ranger station at the head of Lake McDonald (2 miles northeast of the lodge). Secondary consideration was given to other areas of Lake McDonald and the surrounding forest used by the resident pair of eagles.

Three types of impacts on bald eagles could result from the proposal: short-term impacts from construction activity, long-term impacts from habitat removal and lodge operations, and cumulative impacts resulting from this proposal aggregated with other nearby projects, such as road reconstruction (NPS 1989b). Each alternative was rated according to eight different criteria determined to be indicators of potential impacts for both the construction and the operation phases. The no-action alternative was used as a baseline for comparison and assigned values of 1.0 for both the construction and the operation phases. Scores below 1.0 indicated impacts worse than no action, and scores above 1.0 indicated reduced impacts compared to no action. The criteria analyzed, the rating methods, the relative impact ratings, and the management and design recommendations are included in the final report (NPS 1989b) on file at Glacier National Park headquarters and the Rocky Mountain Regional Office in Denver.

The proposal's construction-phase impact rating would be between 0.55 and 0.65, representing a short-term impact on eagles worse than the impacts of no action (1.0) but better than the impacts of the 1986 DCP proposal (0.31). Construction activity during the fall salmon spawning season could reduce foraging by eagles along the lakeshore and around the outlet of Snyder Creek, reducing the utilization of spawning salmon. Four years of eagle observation data (1986-1989) indicate that the number of eagles occupying the lodge/Snyder Creek area in autumn has been declining, although the exact reason for the decline is uncertain. The maximum number of eagles counted at one time in 1986 was 43, compared to 28 in 1987 (during the period when the lodge was being reconstructed), 24 in 1988, and 14 in 1989. Construction activity in the fall of 1987 or other factors affecting eagle use, such as reduction of available food, may have contributed to this reduction (NPS 1988c). During the proposed construction project, prohibiting construction during the November-December eagle migration period and prohibiting daytime construction during the March 1-May 15 nesting season would eliminate disturbance from construction activity during the periods when both resident and migratory eagles are most vulnerable to disturbance.

The rating of long-term impacts during the operations phase of the proposal would be between 1.02 and 0.84, close to the impacts of no action and again better than those of the 1986 plan (0.67). Continued summer use of the lodge area might displace resident bald eagles from foraging along the adjacent lakeshore and around the mouth of Snyder Creek (NPS 1989b). The poor nest productivity of the resident pair indicates that other factors unrelated to the lodge might also have impacts (NPS 1988c). The variables of other summer recreational and residential use of the head of the lake and changes in the natural environment (such as changing fish populations), together with the lack of pre-lodge baseline data, make it impossible to quantify the extent of the impact of the lodge operation. The lodge area is closed to the public in the fall, and maintenance activity during that period would continue to be carefully regulated to mitigate potential impacts (NPS 1988c).

No substantial change in the ongoing impacts on bald eagles would be expected to result from the proposal. Fewer employees would be housed on the site than are currently housed

there; however, the location of the new housing at the north end of the site would be somewhat more intrusive on the eagle habitat at the head of the lake. These two effects would tend to cancel one another and create a net effect similar to the existing condition. The nest site is far enough from the lodge that nesting activity would not be affected (NPS 1989b); impacts of the proposal would be related to disturbance of feeding and roosting activity, as described below.

Removal of some large trees such as cottonwood and larch would occur within the existing development zone. This area was described as having sparse forest vegetation in a forest-stand/eagle-habitat study prepared by park biologists (NPS 1989a). While all large trees in the area are used to some extent by eagles for perching, the sparse forest vegetation is considered to be of lesser habitat value because of the proximity of existing buildings and roads and the scarcity of screening vegetation. Trees or shrubs screening buildings and parking from the lakeshore would be unaffected or minimally affected.

Precluding development and removing the road from the area south of the lodge would prevent man-caused damage or disturbance to important overnight roosting habitat close to the food source at the mouth of Snyder Creek. This should have some long-term benefit, although it is uncertain how much disturbance from traffic actually occurs, because most car traffic occurs in the summer when few eagles use the roosting area.

Increased employee recreational use of the shoreline north of the lodge during the summer might preclude potential additional nesting around the head of Lake McDonald. Current eagle foraging along the shoreline near the lodge would continue to be displaced when the lodge was operating. The proposal would remove about 40 percent of the existing number of employees housed on site, reducing the total overnight population of the lodge area by about 20 percent. A benefit of this would be reduced traffic and pedestrian use of the lakeshore, and a corresponding reduction in the general disturbance that appears to displace eagles during the summer months when the lodge is in operation (NPS 1988c).

Regarding cumulative impacts, another project that could coincide with the construction around the lodge is the reconstruction of Going-to-the-Sun Road along Lake McDonald. This project is scheduled for 1990-92. The current design calls for rebuilding the road at the existing width with minimal clearing of adjacent trees that screen the road from the lake. Construction will be timed to avoid disturbing eagles during the October 1 - December 31 period. At this time, construction at the lodge area is scheduled for 1992 or later; therefore, the two projects are not expected to overlap. However, two consecutive projects would have the cumulative effect of prolonging the period of construction activity and the associated impacts on eagles.

Impacts on grizzly bears would be slight because grizzlies make little use of the lodge area. Occasional transient bears might be displaced for a short term by fall construction activity; however, Snyder Creek has not had a history of concentrated bear use. No grizzly bear habitat would be affected over the long term by lodge operations. The lodge area is generally closed to the public during the fall season when grizzlies might forage for salmon.

Wolves and peregrine falcons would not be affected. No populations of these species currently exist near the lodge, and no potential habitat would be affected.

For a description of activities being taken to comply with the Endangered Species Act, see "Consultation and Coordination."

Water Resources. Water quality would not be adversely affected by construction activity or lodge operations. Surface disturbance would occur at sufficient distances from Snyder

Creek and Lake McDonald for adequate siltation control. The old underground gasoline storage tanks would be removed from the gas station, removing a potential source of groundwater contamination.

Floodplains and Wetlands. Removal of all employee housing functions from the floodplain would eliminate threats to persons and buildings occupying the floodplain. Retaining the existing historic lodge, with its 32 guest rooms, inside the floodplain would not pose a threat to life safety because of the building's size, alternate exits, and multistory configuration, which would provide occupants the opportunity to move above floodwater elevations. At 2.5 persons per room, about 80 people would continue to stay overnight in the lodge. Riprap along the north side of Snyder Creek would reduce the threat of structural damage to the historic lodge structure.

The amount of day use occurring within the 100-year floodplain at any one time is difficult to predict because only a fraction of the total development would be in the floodplain, and guests and employees would move freely throughout the entire area. All the buildings that would stay in the floodplain remained structurally intact during past major floods, and they are all multistory, providing the opportunity for people to move upstairs to safety in the event of a flood.

There would be no negative impacts on natural or beneficial values of floodplains or wetlands resulting from the proposal. The removal of seven buildings from the 100-year floodplain of Snyder Creek would allow the restoration of more natural conditions. Removing the boat fuel storage facility from the floodplain would reduce the chance of water pollution in case of a flood.

Air Quality. Commuting by concession employees would result in a slight increase in vehicle emissions along the park entrance road and Going-to-the-Sun Road. The overall impact would be minimal.

Visual Quality. A visual analysis of the development alternatives was performed using a three-dimensional computer simulation modeling system. The proposed new development would generally blend well with existing structures. New buildings would be designed to be compatible with but not imitate the historic rustic design in the village.

The new lodging structure would be a relatively large building that could visually dominate a portion of the site. This impact would be mitigated by sensitive architectural design consistent with the historic character of the Lake McDonald district (see the "Design Guidelines" in appendix C).

Another plan element that could visually dominate a portion of the site would be the large consolidated parking lot. However, the development concept plan includes elements, such as curved parking bays and extensive planted islands, that would mitigate this impact (see appendix C). A single uncluttered vehicular approach to the lodge would make it the first building seen.

Some buildings that are currently visually intrusive would be removed. The architecturally modern coffee shop building would be demolished, eliminating a visually incompatible element from the historic district. The girls' dorms 1 and 2 are highly visible, and their demolition would remove a visual intrusion from the developed area. Most other employee housing structures to be removed are out of the public view, and their demolition would contribute little to visual quality.

Buildings would generally remain screened by vegetation from Going-to-the-Sun Road and Lake McDonald, maintaining the visual quality of views from these areas.

Cultural Resources

Demolition of the 1960s coffee shop would remove an architecturally incompatible intrusion from the historic district. Demolition of the caretaker's garage, boys' dorms 1 and 2, girls' dorms 1 and 2, and the Jammer dorm would remove buildings from the historic district that were identified on the National Register form as noncontributing structures. Removal of these noncontributing structures would not adversely affect the historic district. Demolition of Hydro and Johnson dorms would remove two buildings with no architectural significance that were excluded from the historic district. Archeological survey, documentation, and clearance would be performed prior to building removal.

Adaptive use of the Garden Court dorm, Snyder Hall, and Cobb House would create no adverse impact on these cultural resources and would ensure a long-term commitment to their maintenance.

New buildings in the historic district would introduce nonhistoric elements into the historic scene. The buildings would be designed to be architecturally compatible with historic structures in terms of size, scale, and color, but they would not mimic the historic structures.

Visitor Experience

Visitors would experience some short-term inconvenience during the summer construction period. The lodge would remain open for business, but visitors would face traffic detours, rough road surfaces, machinery noise and fumes, and visual impacts of disturbed ground before landscape plantings were established. Some construction during the summer would be necessary to reduce construction during other seasons when bald eagles are present and vulnerable to disturbance.

Overnight guests would benefit from contemporary room features. The existing guest capacity would be maintained. Guests and day users would benefit from access, parking, and circulation improvements, which would reduce confusion and increase parking capacity by about 25 spaces. The parking, walkway, and building configuration would generally encourage guests to park and walk more in the lodge area.

Relocating employee housing to the northern edge of the developed area would remove many off-duty employee activities from visitor use areas. Use of Snyder Hall for employee recreation would leave this function in the visitor use area, but on the periphery of the area, at a location convenient to the major work center and employee dining facility in the lodge.

The visitor information and rest room services in the remodeled Garden Court building would improve public orientation and comfort. The new coffee shop/fast-food restaurant would provide functions more in keeping with current demand, including efficient take-out food service.

Park visitors now using the Lake McDonald gas station would have to obtain gasoline at West Glacier (11 miles away) or Rising Sun (37 miles away).

IMPACTS OF ALTERNATIVE A

Natural Resources

Soil and Vegetation. Impacts would be similar to those described for the proposal: Development would generally take place in the previously disturbed area, avoiding old-growth forest stands and, where possible, large individual trees. Approximately 0.7 acre of forest would be cleared, and the total amount of impermeable roadway, parking, and building surface would increase by 1.6 acres. Revegetation and landscape management would be the same as described for the proposal.

Wildlife. Impacts on wildlife would be similar to those described for the proposal, with no substantial effects anticipated.

Threatened and Endangered Species. Short-term impacts on eagles from construction activities would be somewhat greater than they would be under the proposal because of additional housing construction to accommodate 172 employees at the site. This option rated 0.55 by the eagle team. Prohibiting outdoor construction between October 1 and December 31 would be an important factor in mitigating impacts, as described for the proposal.

Long-term operational impacts would be slightly greater than they would be under the proposal because more buildings would be visible to eagles and almost twice as many employees would make recreational use of the shoreline north of the lodge area. The long-term rating for this alternative was 0.84. Although this alternative would accommodate the same number of on-site employees as the no-action alternative, it rated lower because the location of the housing at the northern end of the site would be more intrusive on eagle habitat at the head of the lake than the existing housing, and because some additional habitat would be removed for construction of new facilities.

The removal of employee housing from along Snyder Creek would reduce employee activity along the edge of the nearby eagle roost in the area south of the creek, as in the proposal. However, this beneficial impact might be offset by the elimination of the center access route to the lodge, which would increase summer car traffic on the southern end of the service road adjacent to the roosting area. Neither effect would be substantial, because eagle use here is slight during the summer. Vehicle traffic would continue to be prohibited along this section of the service road during the fall season.

The cumulative impacts of construction of Going-to-the-Sun Road would be the same as described for the proposal.

Like the proposal, this alternative would have no impacts on grizzly bears, wolves, or peregrine falcons.

Water Resources. Water quality would not be affected by construction activities. Continued use of the gas station's underground storage tanks could result in undetected leaks into the groundwater aquifer.

Floodplain and Wetlands. Actions in and effects on floodplains and wetlands would be the same as described for the proposal. Threats to persons and property would be eliminated or adequately mitigated. The removal of several structures would improve the beneficial values of the floodplain. There would be no negative impacts on floodplains or wetlands.

Air Quality. Minimal impacts on air quality would be the same as described for the proposal.

Visual Quality. Adverse visual impacts would be reduced by curving the access roads and parking and screening them with vegetation. Having visitors enter from the north would take them past a number of miscellaneous buildings before they arrived at the lodge, creating a less favorable visual impression than they would get under the proposal. The coffee shop would remain, but the building would be made less intrusive by the addition of a lodging component that would be more compatible with the historic buildings. The demolition of girls' dorms 1 and 2 would remove these visual intrusions from the developed area.

Cultural Resources

The effects on historic buildings and the historic district would be similar to the proposal with the following exception: The coffee shop, which is now an intrusion on the historic scene, would be retained; however, the intrusive modern architecture of the structure would be modified to make it more compatible with the historic district.

Visitor Experience

The visitor experience would be improved, but not as substantially as it would be under the proposal. Visitors staying in the new lodging addition on the coffee shop would face the main parking lot and be separated from the main lodge. To get to the main lodge buildings, visitors would have to pass through, or walk around, the large parking lot and cross the service road, which would be a less pleasant route than would be available under the proposal. Visitor orientation and public rest rooms would be provided as in the proposal, with the same impacts.

Employee housing would be removed from guest lodging areas with the same benefits to guests as in the proposal. However, compared to the proposal, about twice as many employees would be housed in the area, so the benefits of reduced traffic and general congestion would not be as great. Approximately the same number of employees would be housed in the area as now.

The demand for fast-food, take-out service would not be met under this alternative.

Short-term inconveniences during the construction period would be the same as described for the proposal.

IMPACTS OF ALTERNATIVE B

Lake McDonald Lodge

Natural Resources

Soil and Vegetation. Redesign of the access road and parking would result in about 0.4 acre of tree clearing and a net increase of 1.2 acres of impermeable surfaces. Vegetation management of disturbed areas and vegetative screening would be similar to the proposal.

Wildlife. Impacts on wildlife would be similar to those described for the proposal, with no substantial effects anticipated.

Threatened and Endangered Species. Housing employees away from the lodge (at park headquarters) and the associated reductions in foot and vehicular traffic and buildings in the lodge area and along the lakeshore might potentially reduce long-term disturbances to roosting and feeding eagles, although visitor activity would remain in the area (NPS 1989b). The long-term operation of the lodge under this alternative rated at 1.06 from the eagle team.

The construction of parking and access roads and demolition of selected buildings would have little short-term impact on eagles. The short-term construction rating of this alternative was 1.0, the same as no action. Cumulative impacts of construction of Going-to-the-Sun Road near the lodge would be less than under the proposal because of the reduced scale of lodge area construction.

As in the other alternatives, grizzly bear, wolf, and bald eagle would not be affected.

Water Resources. Removing the old underground storage tanks at the gas station would remove a potential source for undetected gasoline leaks into the groundwater. Water quality would not be adversely affected by any of the actions included in this alternative.

Floodplains and Wetlands. Impacts on floodplains and wetlands would be the same as described for the proposal.

Air Quality. Impacts would be the same as described for the proposal.

Visual Quality. Visual quality would be improved by the redesign of access roads and parking as described for alternative A. The coffee shop would remain as an incompatible modern architectural intrusion on the historic district. The demolition of girls' dorms 1 and 2 would remove these visual intrusions from the developed area.

Cultural Resources

Impacts would be the same as described for the proposal with one exception: The coffee shop would remain as an incompatible element in the historic district.

Visitor Experience

The existing motel operation would be retained, with the disadvantages to guests of being isolated from the lodge and staying in generic, motel-style rooms that have nothing in common with the historic and rustic themes of the area. The demand for fast-food take-out service would not be met. Visitors would benefit from simplified access, parking, and circulation. Access to the lodge would not be as direct as it would be under the proposal; however, the removal of the majority of employee housing would reduce traffic and general congestion, making it easier for day visitors and overnight guests to circulate in the lodge area. Employee recreation would be mostly eliminated from the area, eliminating a past conflict. Visitor orientation and public rest rooms would be provided as in the proposal.

Providing concessioner employee housing and support facilities at park headquarters would have no negative impact on general park visitors. Bus traffic on Going-to-the-Sun Road would increase between headquarters and the lodge; however, this would not significantly slow traffic and should have no substantive effects on visitors.

Visitors would not be as inconvenienced by construction activities at the site as they would be under the proposal.

Park Headquarters Site

Natural Resources

Soil and Vegetation. Construction of employee housing, access roads, and parking would require clearing of about 1.3 acres of mixed conifer forest on the edge of the developed area. Part of this area was previously disturbed for an old road cut through the forest. A total of about 1.2 acres of this area would be covered with impermeable pavement or building surfaces.

Wildlife. Some impact on small mammals and birds would result from habitat removal. There would be no significant impacts on larger, more mobile birds and mammals or on wildlife populations in general.

Threatened and Endangered Species. Use of this site by bald eagles and grizzly bears is limited to occasional passage through the area. No significant habitat would be involved, and no significant short-term or long-term impacts on bald eagles or grizzly bears would result. Wolves and peregrine falcons would be unaffected, and no potential habitat would be affected.

Water Resources. Water quality would not be affected. Sewage would be pumped to the park sewage treatment plant. Potable water consumption would increase at the headquarters area. The park water system would adequately supply this increased demand.

Floodplain and Wetland. No floodplain or wetlands would be affected.

Air Quality. Lodge employees commuting from West Glacier to the lodge would result in a slight increase in automobile emissions on Going-to-the-Sun Road along Lake McDonald. The use of late-model shuttle buses would mitigate this effect, and the overall increase would be negligible compared to existing emission levels.

Visual Quality. The proposed buildings would be out of public view and out of view from most of the National Park Service headquarters area. Traffic past the headquarters building would increase during the summer, although use of buses to transport commuters would mitigate this effect. While the site is in the Flathead Wild and Scenic River corridor (as is much of the headquarters area), it is not visible from the river and would have minimal impact on the primitive river values.

Cultural Resources

The maintenance area historic district would be separated from the proposed new structure and would not be affected. No known archeological sites are in the area. Archeological survey would be performed prior to ground disturbance.

IMPACTS OF ALTERNATIVE C (NO ACTION)

Natural Resources

Soil and Vegetation. Ongoing building maintenance and rehabilitation would cause minimal disturbance to soil and vegetation. Nonnative, noxious vegetation would continue to be a problem in disturbed areas and sunny openings around existing roads and parking.

Wildlife. The existing lodge operation would not result in any significant effects on general wildlife.

Threatened and Endangered Species. Continued summer use of the lodge area might displace resident bald eagles from foraging along the adjacent lakeshore and around the mouth of Snyder Creek (NPS 1989b). Eagles would continue to avoid the lodge area during the summer months; however, the lack of pre-lodge baseline data and the overall complexity of the situation make it difficult to precisely analyze the impact caused by the lodge.

The existing lodge operation has no known significant impact on grizzly bears. The area is not high-quality habitat. Bears may wander into the lodge area, but existing management practices prevent habituation problems.

Wolves and peregrine falcons do not use this area and would not be affected.

Water Resources. The underground gasoline storage tanks at the gas station are old and would continue to be a potential source of groundwater contamination.

Floodplains and Wetlands. A number of buildings, including several employee dorms housing about 100 employees, would continue to occupy the 100-year floodplain, posing a threat to property and some threat to life safety, although the area has no history of flash-flooding. The employee housing would continue to be in conflict with Executive Order 11988, "Floodplain Management" (42 USC 4321). There is no provision for grandfathering structures built prior to the date of the executive order (1977).

The boat-fuel tank would remain in the floodplain, also in violation of NPS floodplain guidelines.

Day use of the floodplain is difficult to estimate; however, it is reasonable to expect that off-duty employees would congregate in or near their housing in the floodplain during bad weather, which is when flooding would occur.

No wetlands would be affected.

Air Quality. The existing lodge operation would not result in significant (measurable) impacts on air quality.

Visual Quality. Long, straight roads with adjacent head-in parking would continue to maximize the visual impact of parked cars. The modern architecture of the coffee shop would remain as a visually prominent intrusion on the rustic character of the area.

Cultural Resources

The modern architectural style of the coffee shop would continue to conflict with the rustic style of the historic district structures. Some noncontributing structures would remain in the historic district.

Visitor Experience

Visitor satisfaction with the lodge facilities would remain generally good; however, some problems would be perpetuated. Parking lots would be frequently filled, resulting in visitor frustration and inconvenience. This would be particularly true for visitors staying at the motel, where parking is limited to only half as many spaces as there are rooms. Guests staying in the motel would remain separated from the main lodge and tend to drive to the lodge rather than walk because of the lack of pedestrian facilities. The access roads and parking configuration would remain confusing.

The utilitarian design of the motel and the intrusiveness of parked cars and the coffee shop would diminish visitors' enjoyment of the natural and historic setting. Noise from employee recreational activities near the lodge would continue to disturb guests seeking peaceful park accommodations.

The lack of visitor information would continue to result in disoriented day use visitors not taking full advantage of opportunities in the area. The lack of public rest rooms would cause inconvenience for visitors and increases use of lodge guest facilities for these services.

CONSULTATION

The National Park Service is consulting with the following agencies and organizations during the preparation of this document:

Advisory Council on Historic Preservation
Flathead County Planning Department
Glacier Park, Inc.
Montana State Historic Preservation Office
U.S. Fish and Wildlife Service
U.S. Forest Service

Consultation with the U.S. Fish and Wildlife Service on the plan's impact on endangered species began during preparation of the 1986 DCP and extended into follow-up design work that ultimately precipitated reconsideration of development alternatives for the Lake McDonald area. NPS staff consulted with USFWS staff during preparation of this document, and a member of the eagle analysis team was a USFWS employee. This document serves as the biological assessment for the project, and it will be submitted to the Fish and Wildlife Service for consultation under section 7 of the Endangered Species Act.

Consultation with the Montana state historic preservation officer and the Advisory Council on Historic Preservation is being conducted in accordance with the programmatic memorandum of agreement to comply with the National Historic Preservation Act.

A newsletter describing project issues and inviting public input was distributed in December 1988. More than 60 responses to the newsletter were considered in preparing this document. A public meeting will be held in the Lake McDonald/West Glacier area to accept comments and answer questions during the public review period for this plan.

APPENDIX A: DEVELOPMENT COST ESTIMATES

FACILITY	PROPOSAL	COST	ALTERNATIVE A	COST	ALTERNATIVE B	COST
Employee Housing	Construct addition to motel for dormitory (4,200 sf)	\$ 824,000	Construct addition to motel for dorm (4,200 sf)	\$ 824,000	Construct two 58-unit dorms (20,120 sf ea. x 2 = 40,240 sf)	\$ 7,887,000
	Remodel second floor of Garden Court dorm as 2 housing units (1,350 sf)	223,000	Construct new dorm (7,200 sf)	1,411,000	Construct one 4-unit apartment building (1,440 sf)	282,000
	Construct parking at motel site, 18 spaces (400 sy)	13,000	Construct parking, 20 spaces (450 sy)	14,000	Construct dining hall/kitchen building (2,300 sf including kitchen equipment)	779,000
	Landscape plantings, motel site Seeded area (1,235 sy)	3,000	Utility hook-ups: Water (400 lf)	16,000	Construct parking, 70 spaces (2,500 sy)	87,000
	Trees (8)	2,000	UG electric (100 lf)	3,000	Construct sidewalks (625 sy)	41,000
			UG telephone (1,000 lf)	8,000	Utility hook-ups: Water (250 lf)	11,000
			Landscape planting: Seeded area (1,900 sy)	5,000	Sewer (600 lf)	25,000
			Trees (13)	4,000	UG electric (350 lf)	9,000
					UG telephone (550 lf)	4,000
					Natural gas (650 lf)	11,000
Village Circulation and Parking					Landscape planting: Seeded area (4,000 sy)	11,000
					Subtotal	\$9,147,000
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FACILITY	PROPOSAL	COST	ALTERNATIVE A	COST	ALTERNATIVE B	COST
Lodging	Construct new 33-unit lodging building (14,500 sf) Construct drop zone and cul-de-sac at cabins (550 sy) Obliterate winterkeeper's house garage (701 sf) Obliterate parking at cabins (70 sy) Construct sidewalks (180 sy) Utility hook-ups: Water(50 lf) Sewer (50 lf) UG electric (100 lf) UG telephone (600 lf) Landscape planting: Seeded area (3,180 sy) Trees (51) Subtotal	\$3,800,000 14,000 11,000 1,000 11,000 1,000 2,000 2,000 5,000 8,000 13,000 \$3,868,000	Construct 33-unit lodging around existing coffee shop (14,500 sf) Obliterate cabin drive (520 sy) Construct cabin parking and road (2,120 sy) Obliterate caretaker's house garage (701 sf) Utility hook-ups: Water (100 lf) Sewer (200 lf) UG electric (100 lf) UG telephone (200 lf) Landscape planting: Seeded area (2,050 sy) Trees (19) Subtotal	\$3,800,000 5,000 74,000 11,000 2,000 8,000 2,000 1,000 5,000 5,000 \$3,913,000	No action	
Food Service	Construct new restaurant (3,800 sf attached to new lodging building and including kitchen equipment) Subtotal	\$1,231,000 \$1,231,000	No action		No action	
Service Station	Rehab service station building for post office (450 sf) Remove UG fuel storage tanks (lump sum) Obliterate service station pavement (1,000 sy) Construct parking, 5 spaces Construct sidewalk (170 sy) Landscape planting: Seeded area (1,000 sy) Subtotal	\$ 32,000 27,000 9,000 4,000 10,000 3,000 \$ 85,000	Construct planting islands: Obliterate pavement (80 sy) Seeded area (80 sy) Subtotal	\$ 1,000 1,000 \$ 2,000	Same as proposal Subtotal	\$ 85,000 \$ 85,000
Concession Fuel Storage	Install above-ground, gravity flow, fuel storage tanks at equipment yard: Gasoline (1,000 gal) Diesel (500 gal) Subtotal	\$ 39,000 39,000 \$ 78,000	Same as proposal Subtotal	\$ 78,000 \$ 78,000	Same as proposal Subtotal	\$ 78,000 \$ 78,000
Recreation Hall	Rehab Snyder Hall for employee recreation use (1,187 sf) Subtotal	\$ 316,000 \$ 316,000	Same as proposal Subtotal	\$ 316,000 \$ 316,000	Same as proposal Subtotal	\$ 316,000 \$ 316,000
Concession Maintenance Building	Construct maintenance building (1,200 sf) Construct paved driveway (120 sy) Construct gravel-surfaced equipment yard (575 sy) Construct security fence/screen (260 lf with two 15-ft gates) Subtotal	\$ 197,000 3,000 9,000 9,000 \$ 218,000	Construct maintenance building (1,200 sf) Construct paved driveway and access road (330 sy) Subtotal	\$ 197,000 9,000 \$ 206,000	Construct maintenance building Subtotal	\$ 197,000 \$ 197,000

FACILITY	PROPOSAL	COST	ALTERNATIVE A	COST	ALTERNATIVE B	COST
Fire Station	Construct fire station garage (800 sf)	\$ 115,000	Same as proposal	\$ 116,000	Same as proposal	\$ 116,000
	Construct paved driveway (45 sy)	1,000				
	Subtotal	\$ 116,000	Subtotal	\$ 116,000	Subtotal	\$ 116,000
Visitor Contact Station/Public Rest Rooms	Remodel first floor of Garden Court dorm for visitor contact station and public rest rooms (1,350 sf)	\$ 223,000	Same as proposal	\$ 223,000	Same as proposal	\$ 223,000
	Subtotal	\$ 223,000	Subtotal	\$ 223,000	Subtotal	\$ 223,000
Utilities	Upgrade utility systems: New well	\$ 450,000	Same as proposal	\$ 450,000	Same as proposal	\$ 450,000
	Water system improvement					
	Backup generator					
	Subtotal	\$ 450,000	Subtotal	\$ 450,000	Subtotal	\$ 450,000
1986 DCP Carryover Items Not Included Above	Convert Cobb House to offices (2,381 sf)	\$ 267,000	Same as proposal	\$4,761,000	Same as proposal	\$4,761,000
	Rehab auditorium	661,000				
	Complete lodge rehab project	2,515,000				
	Complete cabin rehab project	1,111,000				
	Remove sewage plant (lump sum)	66,000				
	Construct trail to Sprague Creek (1 mi)	26,000				
	Install riprap on northeast side of Snyder Creek	18,000				
	Obliterate buildings:					
	Boys' dorms 1 and 2	20,000				
	Johnson dorm (1,672 sf)	31,000				
	Jammer dorm (832 sf)	9,000				
	Hydro dorm (671 sf)	7,000				
	Girls' dorms 1 and 2	15,000				
	Existing fire station garage (288 sf)	3,000				
	Garage (1,272)	12,000				
	Subtotal	\$4,761,000	Subtotal	\$4,761,000	Subtotal	\$4,761,000
Totals		\$13,079,000		\$12,908,000		\$15,914,000
Advance and project planning		2,496,000		2,463,000		3,037,000
GRAND TOTALS		\$15,575,000		\$15,371,000		\$18,951,000

Note: NPS policy requires that, to the extent it is economically feasible, the concessioner shall undertake all costs of its own facilities and utilities, roads, parking, and similar infrastructure. The responsibility for funding will be subject to further negotiations between the concessioner and the Park Service. Costs are in gross figures, which include construction costs, construction supervision, and contingencies. Estimates are class C, meaning that they are derived from average costs for similar facilities in other NPS areas.

APPENDIX B: ANALYSIS OF CONCESSIONER COSTS AND OPERATIONAL FEASIBILITY

Several options for concessioner employee housing were considered as part of this project. They included new on-site housing at Lake McDonald, new concessioner-operated housing complexes off site at the park headquarters, off-site housing at the Belton Chalet or other existing structures or new buildings in the West Glacier area, and providing trailer spaces in the West Glacier area for employees with their own RVs. The costs to the concessioner of providing and operating an off-site housing complex were estimated in August 1989 and are shown in table B-1. An economic feasibility study of these options prepared in November 1989 indicated that it would not be economically feasible for the concessioner to build and operate a major new housing complex either at park headquarters or at West Glacier. At that time the option of providing trailer sites for employees was introduced and compared to the other options. The feasibility study is reproduced in this appendix, following table B-1.

TABLE B-1: ADDITIONAL COSTS TO THE CONCESSIONER FOR AN OFF-SITE HOUSING OPERATION

<u>PROJECT</u>	<u>AT WEST GLACIER</u>	<u>AT HEADQUARTERS</u>
CAPITAL COSTS		
Kitchen equipment and employee dining (GPI est.) ¹	\$250,000	\$250,000
Transportation vans (GPI est.) ²	<u>110,000</u>	<u>110,000</u>
Totals	\$360,000	\$360,000
ANNUAL OPERATING COSTS		
Additional food inventory costs (GPI est.)	\$ 1,500	\$ 1,500
Additional employees (13, GPI est.) ³	40,000	40,000
Transportation (7 drivers, gas, oil, maint.) ⁴	<u>226,644</u>	<u>206,040</u>
Totals	\$268,144	\$247,540

¹Costs of furnishings for employee dining room are not included.

²Two vans at \$55,000 each = \$110,000 (provided by GPI).

³Thirteen additional employees are estimated for an off-site housing location (not counting transportation). Breakdown of these employees follows: 8.4 food-service employees needed for establishment of an off-site employee dining area; 1.5 dormitory security employees needed for nighttime security; 3.0 dormitory supervision/janitorial employees needed to provide additional supervision at off-site location. Cost for these employees is estimated at \$39,792. The number of additional employees anticipated and the costs of wages were supplied by GPI.

⁴Transportation costs are based on GPI estimates of the number of trips required per day. Transportation mileage costs were computed at \$3.00 per mile for all labor (seven drivers costing an estimated \$20,608), insurance, fuel, oil, and vehicle maintenance X 11 miles one-way from Lake McDonald to Belton Chalet X 68 trips per day (generally every half hour from 5:30 am to 1:00 am) = 816 miles per day X 101-day operating season = 82,416 miles annually X \$3.00 per mile = \$247,248. To compute mileage expense from Lake McDonald to the park headquarters development site, use 10 miles one-way.

ECONOMIC FEASIBILITY OF
LAKE MCDONALD DCP ALTERNATIVES
Branch of Concessions
Denver Service Center
November 1989

Financial Analysis

NPS policy requires that, to the extent it is economically feasible, the concessioner shall undertake all costs relating to construction of its own facilities as well as utilities, roads, parking and similar infrastructure.

The proposal and alternatives outlined in the DCP (September 89 draft) were analyzed to determine the economic feasibility of the concessioner funding the proposed development, taking into consideration the cost of construction, the 101-day operating season, and the concessioner's overhead expenses as reflected in their Annual Financial Reports (AFRs). This analysis reflects a heavy debt service for the concessioner as a result of the construction program with no additional revenue generating development to off-set construction costs. The Proposal and Alternative which locate employee housing off-site, would require an employee transportation system be established at an additional initial start-up cost plus a recurring annual operating cost to the concessioner. The analysis determined that, based on the estimated construction costs and the AFR financial data as reported by the concessioner, it would not be economically feasible for the concessioner to fund the major costs for these development proposals.

As a result of this analysis, a "Revised Proposal with Revised Concessioner Funding" was developed which calls for the concessioner to fund only the cost of converting the Stewart Motel (a private inholding owned by the concessioner) into employee quarters, plus other small miscellaneous projects. This alternative, due to the limited construction costs involved, has been determined to be economically feasible for the concessioner. There may be other economically feasible alternatives (those which would reflect minimized construction costs or perhaps a long-term phased-in construction program for the concessioner) which could also be developed.

Any cost allocations included within the draft DCP should be considered as tentative.

REVISED PROPOSAL WITH REDUCED CONCESSIONER FUNDING

Under the following new concept, the concessioner (GPI) would retain on-site housing for approximately 100 employees utilizing the Stewart Motel, with an additional add-on wing, as well as other cabins and structures located around the site. The rest of the GPI employees, approximately 60 (37.5 %) would be housed off-site; however, GPI could implement some or all of the following housing options:

1. GPI could elect to contract for off-site housing, on a seasonal basis, i.e., RV sites for employees with their own RV/travel vehicles, houses, apartments, cabins, motel rooms, etc., in the local communities. The concessioner would most likely receive a discounted rate when contracting for a block of rooms or RV sites on an extended (somewhat guaranteed) basis --at least less than an individual could obtain.

2. The concessioner could purchase a set number of small trailers, to be set-up at a local trailer site for use as employee housing in those instances where employees prefer to live off-site but do not have their own trailers.

3. The concessioner should accelerate their efforts to hire local residents who, presumably, would have their own housing in the area and thus eliminate the need to provide housing for 100% of their employees.

4. The concessioner could construct their own RV/Trailer Village sites for employee housing in the West Glacier or other local area.

5. The concessioner could implement the "Proposal" as outlined in the draft DCP or some modified version of a concession-operated employee housing facility.

At the present time, there are at least three RV campgrounds in the West Glacier/Corum/Hungry Horse local area where sites may be available for employees. One of the campgrounds contacted has 200 sites with RV full hook-up rates for 1989 of \$12.00/night or \$180.00/month (\$6.00/night). The number of sites and rates at the other campgrounds were not available as they have closed for the winter.

Based on an estimate of 1.5 employees per RV/trailer site or house, approximately 40 RV sites (or other housing) would be needed for the 60 GPI employees who reside off-site. This ratio is based on other park service areas which provide trailer sites for employees where often a husband and wife are both employed by the concessioner. The option of having trailer sites available for employees who desire to utilize their own trailers can provide the concessioner with an additional employment incentive for the older

or more senior employee who might not otherwise consider a job offer which included housing in a dormitory style structure with other employees who may not be in their age group, and where the use of their private vehicles for driving to/from the work site is not generally permitted.

In order to reduce the number of employee parking spaces needed at Lake McDonald, employees residing off-site should be encouraged to car-pool to/from work whenever possible. This concept provides for 30 parking spaces to accommodate those employees residing off-site and driving their private vehicles to work.

In an attempt to make off-site housing more attractive to, and equitable for, concession employees, GPI should consider offering some type of monetary incentive (bonus, additional salary, mileage costs, etc.) to employees to help offset the additional costs incurred with living off-site and commuting to/from the job site.

Under this concept, the other two concessioner's employees (GPB and GPO) would retain on-site housing for their employees, separate from the employee housing provided to GPI employees.

As mentioned earlier in the financial analysis, this concept, which includes housing approximately 60 GPI employees off-site, has been determined to be economically feasible for the concessioner.

FINANCIAL PRO FORMAS
ANALYSIS OF PROJECT COSTS

CONCESSIONER COSTS:

(1989)

Maximum Concessioner Funding

Rev. Proposal
Reduced Conc
Funding

<u>Project</u>	<u>Proposal</u>	<u>Alt. "A"</u>	<u>Alt. "B"</u>	<u>"Revised"</u>
Emp. Housing	\$2,287,000	\$1,334,000	\$4,327,000	\$ 357,000
Lodging (30)	1,706,000	1,699,000	-	-
New Food Svc.	1,085,000	-	-	-
Remove Svc Stn	18,000	-	18,000	18,000
Landscape	-	2,000	-	-
Fuel Storage	10,000	10,000	10,000	10,000
Emp Rec Hall Conversion	30,000	30,000	30,000	-
Maint. Bldg.	143,000	139,000	143,000	-
Trans. Vans/ Employees	110,000	-	110,000	-
1986 DCP Items	-	-	-	47,000
<u>TOTAL</u>	\$5,389,000	\$3,214,000	\$4,638,000	\$ 432,000

NPS COSTS:

Circulation/ Parking	525,000	376,000	376,000	525,000
Fire Stn.	65,000	65,000	65,000	65,000
VC/Restrooms	134,000	134,000	134,000	134,000
1986 DCP Items	204,000	204,000	204,000	157,000
Emp. Housing	-	-	-	75,000
Lodging (30)	-	-	-	1,681,000
Food Svc.	-	-	-	1,085,000
Maint. Bldg.	-	-	-	143,000
Emp. Rec Hall/ Conversion	-	-	-	30,000
<u>TOTAL</u>	\$ 928,000	\$ 779,000	\$ 779,000	\$3,885,000

APPENDIX C: DESIGN GUIDELINES

INTRODUCTION

The Lake McDonald Lodge developed area has a natural, cultural, and architectural character that is internally consistent and should be preserved. The major portion of the development dates to just after the turn of the century and is in a historic district. Architecturally, the area is predominantly rustic style, utilizing natural, indigenous materials for construction. The Swiss alpine elements of the lodge and other major buildings in the region reflect their historic ties to the era of railroad-promoted tourism. The glaciated landscape with its rugged terrain, placid lake, and heavily wooded surroundings, provides scenery of unrivaled quality.

The following design guidelines are intended to facilitate site planning and architectural treatments that are compatible with the existing facilities and the park environment, not by dictating a precise design style, but rather by identifying criteria that should be met. The guidelines should be used to prepare and to evaluate facility designs for the Lake McDonald Lodge area, especially for places of high visibility and public use.

NPS eagle biologists should be consulted early in the design phase to ensure that the development concept plan intent to minimize impacts and enhance eagle habitat is carried out in the design phase. Cultural resource specialists should also be consulted to ensure that the plan's intent to preserve and enhance the historic scene is also implemented. The cultural resource compliance process will be documented in the Assessment of Affect form to be filed for each project in the historic district.

SITE DEVELOPMENT

Historical Perspective

The site circulation pattern has been altered several times and no longer possesses significant historical integrity or visual value. As the area was originally developed, all buildings faced the lake, which was the best view and the only means of access to the remote site. All transportation was by boat until roads were built to Lake McDonald in the early 1920s. The new road access reversed the site circulation and the orientation of the structures' entries. A visitor's first view became the back of the buildings. Some improvements and adjustments were made to the lodge, such as adding new balconies, to dress up the facade. This "front door" issue was never entirely resolved and is still being addressed today.

The original alignment of Going-to-the-Sun Road passed close to the lodge and cabins along the current lodge area road. Parking for the lodge was along a wide circular access drive, while parking for the cabins was most likely scattered under the trees, as it still is. By 1934 the need for more and better hotel parking and to improve conditions that undoubtedly created congestion on the park's main artery had led to a bypass road around the developed area. A new boulevard access and parking configuration was developed for the hotel. Excess fill from the new cut was dumped in front of the lodge to make a new level, circular parking area. This parking area obstructed the view of the lower part of the building and complicated access to it. This poor solution for access and parking formed the framework for later development and contributed to the unfortunate siting of the coffee shop built in 1966.

No large-scale changes to this area and no opportunity to improve site circulation occurred again until 1987-88, when work to rehabilitate the lodge took place. As part of this project directed by the 1986 DCP, the fill in front of the lodge was removed, once again allowing an unobstructed view of the lodge and improving access to the building. The current DCP revision now proposes that the remainder of the 1934 parking and access drive be removed and replaced with facilities that better relate to the site.

General Guidelines

The DCP proposes to preserve the traditional land use pattern that developed around the natural resource values (centered on the lake) and to separate the incompatible elements of visitation (automobiles and roads) from the more intimate, aesthetic, pedestrian uses. The lodge area road defines the border between the pedestrian and vehicle zones. Roads and vehicles will be relegated to the area farthest from the lakeshore. Pedestrian circulation is most compatible with the natural and cultural resources and will be encouraged in the prime resource area.

A rustic log theme was established during 1988 work on the landscape around the lodge, and that theme should be extended throughout the developed area. Site development deals with all aspects of a developed area except the buildings. Plantings, circulation routes, signs, lighting, and street furniture (benches and trash cans) are all important elements of site development and should be coordinated throughout the site. They play a major role in weaving the total development fabric and thereby reinforce and enhance visitor perceptions and experiences in the developed area.

Roads

The criteria that should guide road and circulation redesign at Lake McDonald Lodge are greater safety, better clarity of circulation patterns, minimization of impacts on wildlife habitat, and separation of automobile traffic from visitor use areas. The DCP seeks to create a pedestrian-oriented enclave that has minimal contact or conflicts with the vehicular circulation system. Key to this concept is centralized parking for both day and overnight visitors.

To provide smooth traffic flow, parking should be off the street as much as possible, and any unnecessary entrances or roadway segments should be eliminated. There should be no redundancy of entries or roadways. Visitors should not be channeled into a situation lacking a smooth and safe way to retrace their route in the developed area. The new entrance road should be laid out to complement the site, accommodate other development, and provide a visually appealing and informative sequence of scenery. First-time visitors should feel relaxed, well-oriented, and not confused. The entrance road should have 11-foot lanes and 3-foot shoulders to carry anticipated traffic volumes. For flexibility there should be more than one exit to the developed area, but only one entry is preferred.

Parking Lots

Parking lots should be located close to access roads and major visitor destinations. Parking should normally be segregated by vehicle type and users so that employees, visitors, and tour buses will not be competing for parking. The lots should be curvilinear and laid out to complement the site and to reduce their apparent size. Planting islands should separate the double rows of parking to reduce visual impact and to increase visitor comfort. The islands should be wide enough to support appropriate vegetation. Periodic pedestrian crossings should be incorporated into the islands to provide for direct access to surrounding sidewalks and paths and to prevent visitors from walking through the vegetation. The parking lot should be defined by a curb and gutter to delineate parking limits, protect pavement edges, limit erosion, and direct drainage.

Walkways

Walkways should be separated from roads wherever feasible to give them a more parklike setting and to provide a higher margin of pedestrian safety. Points of visitor interest should be connected with walkways that are direct but not rigid, using long curves and short tangents in areas of less intense development. Walkways should be fitted to the site topography and features in a complementary fashion. A hierarchy of walkway widths generally ranging from 4 to 8 feet, and even up to 12 feet, should be used, depending on the intensity of use expected, the overall development scale of the site, and the intimacy of the visitor experience. Walkway width should give pedestrians visual cues as they walk through an unfamiliar site, telling them if they are headed toward or away

from major features. All pedestrian access routes should comply with the *Uniform Federal Accessibility Standards*. For example, steps should be avoided on walkways, and ramps should be 8 percent or less in slope.

Paving materials should be carefully considered to meet the criteria of barrier-free access, ease of maintenance, durability, and compatibility with naturally occurring materials and existing architectural elements.

Vegetation

Vegetation should be used to define spaces, frame and highlight site elements and natural features, direct visual interest, and guide traffic flow: Dense evergreen plantings can be used to screen unsightly views or private areas and to visually enclose more intimate areas. Their use might be most appropriate around mechanical systems, utilities, and other pedestrian hazards, or to define and protect sensitive sites. Baffle plantings, composed of canopy trees with an understory of dense, low, impassable shrubs, will be useful in providing visual orientation to an area while maintaining maximum control of circulation routes. They are extremely successful around the perimeter of features such as parking lots. Canopy plantings are well-suited to reducing the negative aspects of parking lots by shading the heat-absorbing pavement and blocking the sun from heating up auto interiors. Overhead foliage screening can also create pools of cooler shade along walkways and over patios and structures, creating a natural type of climate control. Finally, plants can be used to accent, enhance, or frame site features and buildings. In general, evergreen species are used most successfully for barriers and screening. Deciduous species are most successful for baffles and canopy plantings. Combinations of both plant types are used to blend the plants into the natural environment and prevent monotony in the landscape.

With a few exceptions, such as using annual plants in baskets hanging on buildings or in flower beds adjacent to the buildings, only native plants should be used for landscape materials. These include deciduous trees such as birch and black cottonwood and evergreens such as spruce, white pine, cedar, fir, larch, and hemlock. Generally, the deciduous species are found in lower, wetter areas along streams and lakeshores, while the evergreens dominate the higher elevations farther away from the lake and drainages. All these species have adapted to the area, are present throughout the site, and can be used together fairly easily and successfully.

When installing native plants, only materials grown or transplanted from the park's genetic pool should be used. Advance planning and propagation are critical to making the genetic pool objective work.

Due to their dark, year-round color, evergreens provide a continuous visual accent when placed near structures. The black cottonwood and birch have tall, broad crowns that suit them well for framing buildings and views. Birch and cottonwood trees are also recommended for the parking islands. All of these trees are susceptible to extremes of weather, and wind is the major enemy of the more mature evergreens, often blowing them down in less densely forested areas, such as the area near Lake McDonald Lodge. This type of destruction is infrequent, but should be considered when planting around structures.

Turf lawn and annual planting beds are a traditional and appropriate ground cover for areas next to the lodge or other areas subject to heavy visitor traffic. Native understory plants and grasses should be incorporated into other areas, where appropriate. Planting plans should preserve and complement existing trees and shrubs where possible.

Signs

Any proposed new signs should be reviewed by the park's sign committee. An inventory of existing signs in the Lake McDonald Lodge area should be completed to determine any inadequacies or inconsistencies. New signs may be integrated into the existing sign system, or an entirely new system of signs may be devised.

All signs should be unified in character and should complement the architecture, scale, and indigenous materials of the area. The possibility of creating traffic control signs as well as directional/informational signs out of the same or complementary materials should be pursued.

A minimum number of signs should be used and their sequence and locations should be well-planned. Sign information should be brief, legible when viewed from a moving vehicle, and correct.

Traffic control signs should be located on road tangents instead of curves, for greatest visibility. Information signs should be mounted low to the ground, well back from roadways, and below the horizon line of drivers. Signs should not conceal pedestrians.

Signs should not block or dominate views or in any detrimental way intrude into the scenery. Vegetation must not obscure the text of a sign, but it may be used to focus attention to the sign or to screen distractions that might divert attention away from the sign. No signs should be lighted.

Housing Areas

The DCP proposes to physically separate housing and lodging areas to ensure that employee activities do not encroach on the visitor experience. Separation will also provide greater privacy for employees, and a more consolidated employee housing area should encourage a sense of community among the employees.

Landscape screening and barriers can be used between the employee housing area and visitor areas. Employee parking should be minimized, and walkways should be provided to encourage employees to walk to work; however, these walkways should be unobtrusive and narrow to avoid inviting visitor interest. Visitors should not perceive that they are being physically excluded from employee areas, but they should get an impression of semi-privacy through scaled-down site amenities, landscape plantings, and if necessary, signs.

ARCHITECTURAL ELEMENTS

Historical Perspective

The overall appearance of the Lake McDonald area today is the result of building that began in 1895 (prior to the establishment of Glacier National Park). Most of the early buildings were simple log structures with front porches built along the lakeshore facing the lake or along Snyder Creek. Some of these structures served as lodging for the influx of tourists, while others were built as private seasonal cabins. The main structure of the Snyder Hotel complex at that time was a frame building with wood siding painted white. This building dramatically stood out from the other, more rustic structures. It was apparently demolished to make way for the Lake McDonald Lodge (John Lewis's Glacier Hotel) which was built in 1914 and remains today as the largest structure in the developed area.

The Lake McDonald Lodge closely followed the themes that were being developed elsewhere in the park. For almost 50 years the Great Northern Railroad and its subsidiary, the Glacier Park Hotel Company, dominated the development of concession facilities in and near the park. These facilities were built for use on a seasonal basis. Major hotels were built at East Glacier, Many Glacier, and Waterton Townsite. The company also established chalet complexes on Two Medicine Lake, Cut Bank Creek, Swiftcurrent Lake, Gunsight Lake, and two complexes on St. Mary Lake. These sites were connected by a network of roads, trails, and lake launches that were designed and often built and maintained by the railroad.

Louis Hill, president of Great Northern, not surprisingly likened the Glacier area to the Swiss Alps and envisioned a European motif for its development. His approach to funneling travelers through the area was also European in design – a railway, road, and trail network. A chalet-style architecture for tourist accommodations completed the Old World atmosphere. While development of the Lake

McDonald area did not come under the control of the Great Northern Railroad until 1930, it was still under the direction of owner John Lewis, who closely followed all the development themes being implemented by the railroad.

The hotels were to provide a wilderness atmosphere. Built and furnished largely from local materials, these log and frame structures fit naturally into their environment and into the park's basic image. At Lake McDonald Lodge the rustic elements of the exterior include exposed log roof purlins, decorative logs projecting horizontally from the wall to appear as extended log joists, and the log structure and fine stickwork of the imposing balconies. On the lodge interior this influence is manifested by the towering western redcedars at the four corners of the 3-1/2-story open atrium with its massive log trusses crossing at the top of the lobby, a huge inglenook fireplace, rustic hickory furniture, and everywhere inside an assortment of skins, stuffed animals, and goat, elk, moose, deer, mountain lion, bison, and bear heads. Paintings of park landscapes and hunting scenes specifically commissioned to grace the walls of the hotel hung everywhere there was room. Framed copies of Great Northern Railroad scenic photographs used in the promotion of the park were also used, again emphasizing the wilderness and beauty of the park landscapes.

Included in this collection of images was an idealization of the American Indian. By this time the freely wandering native American was gone from this area. The remaining Indians had been relocated to reservations, where they lived in poverty as they were encouraged to learn the white man's ways. However, in the park there was a conscious effort to cultivate the 19th century romantic image of the noble native staged against the spectacular backdrop of scenic mountains, lakes, and glaciers. The primitive Indian fit well into the romantic concept of the wild, natural environment that the American visitor brought with him to the park. When lodging facilities were completed by the railroad in 1911-12, Blackfeet braves were brought from the reservations to the hotels, where they pitched their tepees and performed dances, acted as backcountry guides, and mingled with the visitors. The evidence of this interest in Indian culture at Lake McDonald Lodge is shown in the many Indian rugs that graced the floor, upholstered the couches, and hung over the railings of the lobby; the interesting stick figures and pictograph-type drawings on the face of the fireplace; the Indian sayings inscribed in the floor at each entrance and major hallway; the large murals painted on the second floor balcony depicting Indian camp life; and the totem pole that once stood outside the dining room. The primitive native American also fit well into the image of Glacier as a preserved wilderness where nature was unspoiled by the corrupting influence of industrial civilization.

Wilderness, however, was not Glacier's only image. The park was also thought of as the Alps of America. In developing park facilities, entrepreneurs such as Hill and Lewis provided the setting and transportation methods to mimic facilities found in Europe. In almost every magazine or newspaper story about the new park, Glacier became the "American Alps," the "crown of the continent," the "Alps of Montana," an "American Switzerland," or the "top of the world." The company plan was to appeal to a generally wealthy tourist, one that could afford the luxury of European travel but who could be persuaded to "See America First." The availability of first-class accommodations was necessary to make this happen. The physical aspects of the buildings at Lake McDonald that reflect the so-called Swiss alpine style are the clipped gable roofs, large overhanging eaves, large decorative brackets supporting the eaves, stucco, and rough sawn wood siding in contrast to jigsaw decorative moldings. In addition, use of colorful annual plantings in beds, planters, and hanging baskets lent a refined and continental setting to the lodgings.

These hotels were not simply rows of rooms where a tired traveler spent the night and hurried on the next morning. They were created as theaters, stages adorned with the props of wilderness and its early inhabitants, where the guest participated in the frontier past. At the same time, they displayed a refinement and class to compete with similar types of lodging in Europe. These elements were skillfully blended together to give the buildings their unique but very appropriate character.

Assessment of Buildings

Historic District Structures. Lake McDonald Lodge is the largest structure in the developed area and has been recognized as a national historic landmark. The rehabilitated building displays all the character themes discussed earlier. This building will remain as the prime historic resource and as

the dominant structure providing a variety of services for both overnight guests and day users to this area.

The camp store, constructed in 1937, is the only other building that picks up the Swiss alpine theme. It exhibits all the elements of this style included in the lodge, plus its front-facing gable exhibits a decorated half timbering effect. This high-visibility structure is a primary contributor to the area theme.

The recreation/auditorium building and the Cobb House continue the rustic theme. Each of these buildings has some nice remaining exterior and interior detailing. These lower visibility structures still are contributors to the primary area theme.

Remaining buildings such as the Garden Court dormitory, the caretaker's residence, guest cabins 1-14, Snyder Hall, the dispensary, the carpenter shop, and the private cabins are contributing structures. They do not make strong statements in themselves. Although many have been altered from their original appearance, they still blend with the general, overall theme of the rustic style. The cabins also strongly display the early site development of the area, lined up in a row along the lakeshore.

Nonconforming Structures. Boys' dorms 1 and 2, girls' dorms 1 and 2, Johnson and Hydro dorms, the garages for the caretaker's house and the fire truck, and the gas station are structures with no architectural value. The dorms also are generally poorly sited and are substandard in meeting life safety and health requirements. The DCP proposes to remove all these structures.

The coffee shop, built in the late 1960s, has a commanding, central position at the crest of a low hill. Its use as the dominant food service facility at Lake McDonald other than the lodge dining room makes it a prominent structure. Its massing (one story with very low roof slope), color, use of materials, and large plate glass are awkward in relationship to the more theme-oriented buildings. Its central, prominent position and surrounding landscape ensure that no one misses that fact. The DCP proposes to remove the structure.

The motel is a major part of the lodging provided at Lake McDonald. Its location is functionally poor. It is fairly well-screened from the road behind the camp store, and it is screened from the lake by private residential cabins and trees. The two motel buildings contribute nothing positive to the area in terms of massing, style, theme, etc. They appear to have been built originally as single-story structures with later second-story additions. This ungainly facility appears to be in good condition, but its lack of a theme appearance, distance from the main lodge, and screened site would make it better suited for other site needs or demolition. The DCP proposes to rehabilitate the structures for employee housing.

Architectural Guidelines

Relationship. Create an experience that is sympathetic with the role or purpose of each facility. Reinforce the previously developed themes on an appropriate level.

Technology. Protect fragile environment zones, including wildlife habitat, by incorporating the latest resource recommendations into designs. Use energy-efficient designs for new facilities.

Buildings. Preserve the integrity of the historic structures and district by relating new development to the character, themes, and scale of the older buildings.

Match the form of new buildings to the form of historic facilities. Consider base form type, roof form type (e.g., clipped gables) and types of form extensions.

Coordinate the proportions of new structures to the proportions of the historic buildings. Consider overall proportion and scale, main facade proportion, and proportions of details.

Make the height of new facilities similar to the height of adjacent historic buildings. If the new building is large, it should relate proportionally to the height and scale of the lodge. It is preferred, however, for new facilities to be subordinate to the building that clearly dominates a complex.

The rhythm of historic building spacing and fenestration or detail articulation should be maintained in the design of new facilities.

Blend the form articulation of new facilities with that of adjacent historic buildings and site elements. Choose materials and finishes, color, and texture that are compatible with surrounding buildings.

Comply with provisions of the secretary of the interior's standards and guidelines for rehabilitating historic buildings and with the NPS *Cultural Resources Management Guideline* (NPS-28).

Comply with the provisions of the NPS *Housing and Rehabilitation Guideline*, (NPS-76).

APPENDIX D: PARKING AREA CALCULATIONS

On-site Employee Parking Demand:	
Motel area (86 @ 21%)	18
Caretaker's residence (2 @ 100%)	2
Garden Court (4 @ 100%)	4
Dispensary (1 @ 100%)	1
GPO cabin (6 @ 50%)	<u>3</u>
Total On-site Demand	28
Off-site Employee Demand:	
65 employees @ 50% (avg. 2 per car)	<u>33</u>
Total Employee Parking Demand	61
Proposed On-site Employee Parking:	
Motel area	36
Portion of village parking	<u>25</u>
	61
Proposed Consolidated Parking Lot:	
Replace spaces south of coffee shop	100
Replace cabin parking	30
Additional spaces for proposed transportation system (6) and growth in day use (19)	25
Employee parking	<u>25</u>
	180

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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